THE ESSENTIALS OF LOGIC.

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BRITISH MUSEUM

THE

ESSENTIALS

OF

LOGIC:

BEING A SECOND EDITION OF

DRALLOC's EPITOME IMPROVED,

COMPRISING

An Universal System

OF

PRACTICAL REASONING;

ILLUSTRATED BY

FAMILIAR EXAMPLES, FROM APPROVED AUTHORS.

BY JOHN COLLARD.

Quem mala stultitia, et quæcunque inscitia veri
Cæcum agit, insanum Chrysippi porticus et grex
Autumat. HOR.

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PREFACE.

I Am happy to submit the following eſsay to the public, after a second enquiry into the subject; because I conceive that it has enabled me to present those who wish to cultivate the study with some very eſsential improvements. I will not deny that I was pleased with the approbation which the Epitome received; but it was in consequence of some severe, and not very candid, strictures on that little compend, that I was induced to turn my thoughts a second time entirely to the subject: so true is the adage,

Nihil est tam grave quin amicum feceris.

Among the chief improvements will be found an attempt to trace the principles of reasoning up to their highest source, in order to discover where reasoning begins, how far it serves us, and where it ends: an examination of familiar reasoning, to shew that the principles of reasoning are invariably the same, whether stated in a familiar, or a syllogistical order; and, to render the analysis obvious, in whatever order of language the reasoning be

expreſsed, the abstract principles will appear in different types: the doctrine of mood and figure proved useleſs, and another system substituted: complex, and conjunctive syllogisms exploded: The ancient doctrine of sophisms proved futile, and more simple means of detecting fallacy offered, &c.

The *praxis* is illustrated by quotations from Locke, Johnson, Hume, Addison, Pope, &c. of those who are no more, and a great variety of writers still labouring in the vineyard of literature. While I have considered it eſsential to be concise, in a work of this kind, I have carefully endeavoured to avoid obscurity; and I conceive it an object of some importance, that these improvements have not greatly increased the bulk of the work.

After carefully revising the whole, and duly attending to every hint that has come to my knowledge, by whatever motive dictated, I have ventured to reverse the word DRALLOC, and now humbly deliver, at the bar of criticism, this little piece under my real name, in as perfect a state as I am capable of making it.

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THE

ESSENTIALS OF LOGIC.

PART THE FIRST.

CHAPTER I.

Containing a short definition of the subject, and treating of the several kinds of ideas.

LOGIC, a word derived from the Greek λόγος, originally signified the art of reasoning; but, is now used as the sign of a science comprehending the theory of the human understanding, and the practical rudiments of mental discipline.

The extent of this subject, in its most enlarged sense, is vast in the extreme, since it is employed about all ideas of which the mind is susceptible, together with their modes, their relations, their predicaments, and combinations; but as this eſsay is intended to simplify this complicated science, and to reduce its most useful maxims into so small a compaſs as to render them

of advantage to those who cannot submit to the severe and intense application necessary to a thorough acquaintance with all its minutiæ, let us, without further preliminary, first take a brief view of ideas.

The word idea, according to the original meaning, signifies the form or the shape of a thing, but now represents only the notion of an object, a circumstance, or a relation, as existing in the mind.

Ideas are of two kinds: the first are called *ideas of sensation*, because they are received through the medium of one or more of the senses. An idea of sensation is an effect produced in the mind, by the presentation of some object to one or more of the senses. Such are our notions of *coldness*, *whiteness*, *sour*, *scent*, and *sound*. Now, though we know of no physical change, which the objects exciting these notions effect within us, certain it is, that when we have once felt, seen, tasted, smelt, or heard any thing, though the exciting object be instantly removed from us, a consciousness of the effect which its presence produced still remains with us.—These representations, then, or remembrances, thus remaining in the mind, which we are able to revolve in our thoughts, and contemplate at our will, are called *ideas of sensation*.

Notions of the second clafs are called *ideas of reflection*, because they are generated in the mind by contemplating, compounding, or comparing the ideas we have previously obtained by sensation. As when we recollect to have been revolving, or examining, one or more ideas, we find that this operation produces a new idea, called *thinking*, and the very discovery of this new idea presents to the mind another, called *perception*. If, after comparing two or more ideas, we cannot obtain the complete satisfaction we expected, the uncertainty, in which the mind remains, introduces the idea of *doubt*; but, if the result of the enquiry amount to something which approaches towards certainty, it terminates in the idea of *belief*. Of this clafs are *knowing*, *willing*, *reasoning*, *relation*, &c. Now all our ideas must be either of the one or of the other, of these two clafses.

Ideas are either simple or complex. A *simple idea*, whether of sensation or reflection, presents but one uniform, indivisible character to the mind, which will not admit of plurality; nor can it possibly be perceived to contain two different natures. Such are all those before mentioned. All simple ideas of sensation the mind pafsively re-

ceives from external objects, and all simple ideas of reflection are generated in the mind by its own operations. Of these two kinds of simple materials is composed the whole fabric of human knowledge.

Though the mind cannot alter one simple idea, and passively receives most of them by sensation, yet it connects two or more simple ideas, of the same kind, or of various kinds, and so firmly unites them under one name, as to be able to manage them as tractably for its own accommodation, and for the purpose of informing others, as though they were one simple idea, and had not been made up of several parts.

Thus the mind being possessed of the simple idea of *unity*, or *one*, adds another unit to it, and then another, when, having combined them under the term *three*, it finds that combination so united, as easily managed as a simple unit, or one: then, by adding three more, it joins the two combinations under the term *six*; and, by placing thereto another three, forms the composition, collected and united under the term *nine*; and so with all the various combinations of numbers.

All these mental unions are called *complex ideas*;* and the mind arbitrarily composes them at its will. It also unites simple ideas of various kinds, as the simple idea *one* being joined to the simple idea *will*, or *volition*, forms the combination *unanimity*;† and this is called a *complex idea of reflection*.

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* The celebrated JOHN HORNE TOOKE, Esq. to whom the world is much indebted for many valuable hints, in his book, entitled ΕΠΕΑ ΠΤΕΡΟΕΝΤΑ, says, pages 49, 50, "I think, "had Mr. LOCKE sooner been aware of the inseparable connec- "tion between words and knowledge, he would not have talk- "ed of the *composition of ideas*; but would have seen that it was "only a contrivance of language: and the only composition "was in the *terms*; and, consequently, that it was as improper "to speak of a *complex idea*, as it would be to call a constellation "a *complex star*." We shall, however, the better to be understood, apply the complexity either to the term or the ideas, as the occasion may invite; and this is the more necessary, as there are an infinite number of simple ideas and combinations for which there are no names.

† Here the composition is evidently in the term also. It might, perhaps, be thought, that the complex term *unanimity* comprizes more than the simple ideas *unity* and *volition*, as implying several persons, whose agreement the complex term *unanimity* denotes; but, let it be observed, that the combination is here considered as an abstract attribute, bearing no relation to its subject whatsoever. Let those, however, who believe that a better example might be found, make the attempt, and perhaps they will discover, that it is not so easy a matter to find a combination purely intellectual, wherein all the simple parts can be distinctly enumerated.

Besides the infinite number of complex ideas, or combinations of simple ideas, united like parcels, containing a variety of goods, the readier to be reviewed in the warehouse of the understanding, and the easier to be conveyed to others under a single denomination, to avoid the trouble and difficulty of enumerating the particular articles each parcel contains;—besides these, I say, most external objects produced both by nature and by art, contain similar collections of simple appearances, which the mind passively receives; *e. g.* the objects of a number of these simple ideas are united in an orange, and, though existing in one subject, so distinct are they, and diverse from each other, that they reach the sensorium, or seat of the soul, through different mediums of sensation. The colour, which is completely distinct from the taste, makes its way through the eye; the taste, through the palate; the smell, through the olfactory organs; the solidity, by means of the touch. Now, these four distinct objects, than which, no notions can more widely differ from each other, are all, with many others, resident in one subject, namely, an orange, and form a natural combination, similar to one of those artificial compositions formed by the mind for its own accommodation. The idea of an orange is, therefore, *a complex idea of sensation.*

Of this clafs are a house, a man, a town, a ship, and all other objects of sensation, which present to the mind two or more distinct ideas, united in one subject. It may be neceſsary also to observe, that these four objects of perception, combined in an orange, could never be introduced to the notice of the soul, but through the medium of the respective organs fitted for their introduction;* for, if any one of these organs were wanting, all the remaining senses united could never inform the mind of that idea so shut out. Thus, if a man were born blind, his organs of tasting, feeling, smelling, &c. never could inform him of the colour of an orange, and, could he neither smell nor taste, his sight could give him no idea of its flavour.

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* Mr. Locke, in his Eſsay, pages 83 and 84, vol. I. ſays, "I think it is *not poſsible* for any one *to imagine* any other *qualities* "in bodies, howsoever constituted, whereby they can be taken "notice of, besides sounds, tastes, smells, visible and tangible "qualities.—And he that will not set himself proudly at the "top of all things, but will consider the immensity of this "fabric, and the great variety that is to be found in this little "and inconsiderable part of it, which he has to do with, may "be apt to think, that in other mansions of it, there may be "other, and different intelligent beings, of whose faculties he "has as little knowledge or apprehension, as a worm shut up "in one drawer of a cabinet, hath of the senses or understanding of a man."

Having briefly shewn that a simple idea of sensation is an indivisible image in the mind, of something which exists without; that a simple idea of reflection is an indivisible representation of some action of the mind within itself; that a complex idea of sensation is a combination of effects produced in the mind by one external subject, in which the objects of many simple ideas are combined; and that a complex idea of reflection is an aſsemblage of simple ideas generated in the mind, and united under one name by the mind itself; let us now take a view of the mind, employed in the economy and formation of its factitious ideas.

CHAPTER II.

Of the operations of the mind, in the formation of its ideas.

I. OF ABSTRACTION.

ABSTRACTION is the act of detaching, in imagination, one or more of the component parts, from an aſsociation of ideas, whose objccts, out of the mind, may be indivisible. Thus, when we take into consideration the yellow colour of an orange only, dropping, or disregarding the taste, the smell, the density, time, place, circumstance, &c. we perform that operation of the mind called abstraction, and the idea of the colour considered alone, is called *an abstract idea.*

II. OF GENERALIZATION.

The moment we begin to enlarge the idea of that particular yellow colour perceived in an orange, by extending it to the colour seen in a lemon, a pine-apple, braſs, gold, or any other substance in which that colour may be perceiv-ed, so as not to consider it as a particular and dis-tinct colour in each individual object, but as one colour, though perceived to be resident, with some little difference, (which the mind does not notice,) in a variety of subjects;—the moment,

I say, we so enlarge it, we perform that operation of the mind, called generalization; and the idea, so abstracted and enlarged, is called *an abstract general idea.*

Again, having abstracted the idea of body from all particular masses of matter, throwing aside, or disregarding its colour, figure, size, time, place, relation, &c. the mind views it as a naked, abstract, general idea; abstract, because it is considered by the mind stripped of all mode and figure, without which it cannot physically exist; and general, because, in this naked solitude of abstraction, it comprehends, and is equally applicable to all bodies, animate and inanimate, and exhibits no difference between a man, a stone, a house, a clock, or the whole orb itself. This is one of the most general abstract ideas the mind is capable of forming. The idea of life, also abstracted from body, and enlarged, so as to comprise that principle in all animated beings, is another of our most general abstract ideas.

III. OF COMPOSITION.

Now these two, abstract, general ideas, namely, *body* and *life*, being joined together by the mind, lose their respective names, and form a

complex, abstract, general idea, under the term *animal*; complex, because it is made up of a plurality of ideas; abstract, because it takes away, for its own consideration, life and body from all the other qualities necessary to the distinction of every living creature; and general, because it includes all living beings, without noticing any difference between them.

To these may be added, either the idea *terrestrial*, *aquatic*, *volatile*, or *amphibious*, and thus would be composed the *complex*, *abstract*, *general idea* of one of those ranks of beings.

Something like this might be attempted to compose moral and intellectual associations of ideas; as courage, faith, hope, charity, compassion, gratitude, &c. may be said to compose *virtue*;*

* As the names, by which mental compositions, or associations of ideas are denoted, do not now (whatever might have been the practice in the primitive languages) contain a catalogue of the contents of each parcel, or association, in most instances, it is impossible to effect an analysis, *i. e.* to separate and arrange the simple materials composing each combination, or, according to the idea of Mr. Horne Tooke, it is extremely difficult to discover the true meaning of each abbreviation; for such he considers every single word which either represents a combination of ideas, or stands as the sign of a number of other words.

but, unfortunately, we are so little acquainted with the component parts of such combinations, that it is hardly posible ever to effect it with any tolerable certainty.

IV. OF COMPARISON.

When the mind exhibits to its own view, two, or more ideas, and is employed in examining their agreement or disagreement with each other, it performs the operation of comparison; as when we consider the difference of colour, bulk, flavour, &c. between an orange and a pine-apple; certain incidents, with a reference to different periods of time and place; men's conduct, with respect to religious, moral, or legal precepts, &c. From these, and similar actions of the mind, arise all our *relative ideas of greater, less, earlier, later, better, worse,* and the like.

Thus having seen, first, that *abstraction* is the taking away of one, or more ideas, from others, with which they are naturally, or artificially combined; secondly, that *generalization* is to enlarge an abstract idea, so as to make it the mental pattern of all similar objects, though found resident in a variety of subjects, differing widely in every other respect; thirdly, that *composition*

is the joining of two or more ideas, or collections of ideas, and uniting them under one name: fourthly, that *comparison* consists in examining the agreement, or disagreement, between two or more ideas; let us now enquire what is understood by substance, in which the objects of most of our simple ideas are resident.

CHAPTER III.

Of substances in general.

SUBSTANCE, in Latin *substantia*, [i. e. *sub se stans*,] writers on this subject say, *is a being that can subsist by itself, without dependence on any other created being*. A house, a horse, wood, stone, water, fire, a spirit, a body, an angel, are all called substances.* They also describe it to be the subject of *modes* or *accidents*. It cannot, they say, be annihilated, or utterly destroyed and reduced to nothing, but by the power of

* Vide Watts's Logic, page 11.

God.* This point I will not contest; but, though the essential support of those qualities which excite simple ideas in us be no better understood than the nature of *fire*, *spirit*, or *life*, yet we are convinced by the highest human evidence, that *life*, *fire*, *body*, and *spirit*, differ entirely from each other. And we have not the least reason to be-

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* With due deference to those gentlemen, who are entitled to great respect for the services they have rendered mankind—with due deference, I say, to characters so truly respectable, I conceive that, ranking thus, fire, spirit, and angel, with gross inert matter, under the common name substance, if it were strictly philosophical, tends at least to create useless divisions, such as *substance thinking*, *simple* and *compound substances*; *philosophical*, *elementary*, and *vulgar substances*; *pure* and *mixt*, &c. with all their definitions, which frequently overload the mind, and discourage the tyro in pursuit of useful information. Moreover, I have never yet witnessed the existence of a spirit independent of body, for, though the mind be capable of abstracting spirit from matter, and be able to consider it as an independent being, who can prove that it has any *distinct* existence *in rerum natura?* If the *thinking*, or *cogitative* being, independent of body, be called a substance, because the mind is capable of contemplating it separate, and entirely detached from matter, then all our abstract ideas, such as the colour of an orange, the white observable in snow, and every other mode which can be divided from its subject in thought, may, for the same reason, be called substances; but none of these objects have, I presume, been found to exist in nature totally independent of body, and therefore cannot be said to exist *without dependence on any other created being*.

Animal

lieve that they all poſseſs the common character by which they are claſsed, *i. e.* that *they all exist without dependence on any other created being*. We shall, therefore, rank only things consisting of what is generally understood by the term *matter*, as *substances*, and shall signify *spirit*, *life*,

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Animal vitality is called life, so is the power of increaſe in vegetables; but with far leſs reason than the motion of a bird in the air should be called galloping, because the motion of a horse in full speed is so denominated. The nature of fire, too, is so extremely abstruse, that, though it be generally considered as material, it is by no means certain, whether it be of the common maſs of matter, under peculiar modifications, or a specific substance, *sui generis*.

A great deal has been said about fire quiescent, and fire in a state of action, without throwing any light on the mysterious nature of that principle. Fire is defined, by some, to be an union of infinitely small particles, scarcely adhering to each other, and a body of motion. This, however, is fruitleſs speculation, since we are not endued with organs fitted to clear up the myſtery involved in such conjectures.

It would be well, perhaps, were logicians and philosophers to acknowledge their ignorance of these and similar subjects, and (since nothing but Greek or Latin terms are admiſsible) rank them as *non satis cognitæ res*, or things not sufficiently known.

Logic, being an art which should teach us to use to advantage the knowledge which is fairly within the reach of our faculties, ought not to be crowded with obscure subjects; and when they *are neceſsarily* noticed, care should be taken to shew how far our

angels, *fire*, and *space*, should we have occasion to notice them by the term *subject*, *object*, *thing*, or *being*.

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knowledge of them extends, and our ignorance of the rest should be frankly admitted. Were this maxim observed, we should have little to say, perhaps, about the *substances*, called *spirits*, *angels*, &c.

Space, indeed, has a better title to the term substance, according to this definition, for *it subsists by itself without dependence on any other created being*; but all that has been written on life, fire, &c. serves but little, perhaps, to elucidate the ideas these objects themselves present to the mind. It may, then, be fairly concluded, that he who is conscious of his own thoughts and perceptions, who has observed the effects of life in animals, noticed the increase of vegetation, who is able to distinguish space from body, and has observed the effects of fire, knows as much of the nature of these subjects, as though he had read all the learned conjectures of those who have wandered in the dark expanse beyond the confines of human knowledge, in search of theories for which there is no rational support.

CHAPTER IV.

Of modes and substance.

BY reviewing what has been said about complex ideas, we shall soon have a clear notion of what is meant by *modes*. It has been said, that a number of simple objects co-exist in an orange; now as the orange itself is called a substance, because it has an independent subsistence, so the simple objects which are resident in it, as *colour*, *figure*, *a degree of solidity*, &c. are called *modes*, because they cannot exist alone, and are dependent on the substance.*

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* It cannot be denied, that the modes of a great part of the matter of which this world is composed are subject to continual changes, as the abundant produce of vegetation annually demonstrates. The almost incredible quantity of grain, fruit, herbage, &c. which each season affords, forming a part of the food of men and other animals, is changed into animated substance, or excerned with a total change of qualities; these animals, after a ſhort period of existence, die, and their bodies are committed to the common maſs, where they must lose all the *modes*, *properties*, and *attributes*, of the animal body, before they can aſsume the modes and properties of *duſt*, or any other solid maſs. Moreover, the immense quantity of iron, lead, copper, &c. which is annually extracted from ores, and converted into

 articles

Modes are *eſsential* or *accidental*. An eſsential mode or attribute is that which is so necessary to the existence of the subject, that it cannot be taken away without destroying its very nature. Thus *life* is *eſsential* to a *man*, for, if he be deprived of it, he will be no longer a man, but a corpse. *Fluidity* is an eſsential mode of *water*, for, if it be congealed, it is no longer water, but ice. The particular *figure* of a *needle*, which is itself a mode of steel, comprises its ab-

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articles of use and ornament; the quantities of wool, flax, hemp, silk, timber, &c. produced and manufactured; and, in fact, a prodigious variety of other things, which this earth produces, and about which labour is employed, would become superabundant, and the surface of this orb would be encumbered with its own produce, did not all such things suffer a gradual diſsolution, exactly equal to the product, till they, with all the modifications art and industry have given them, become a part of the common chaos. A portion of this *colluvies*, through the mediate power established by the Deity, in the mysterious and wonderful organization of the world, is again aſsimilated with, and forms a great part of each succeeding tribe of beings. Some, indeed, aſsume their attributes rapidly, and as hastily suffer diſsolution; others are extremely durable, and stand the test of ages without appearing to exhibit any visible marks of decay, as *glaſs* and *diamond*, which have been called *incorruptibles*, yet modern philosophy proves that they differ from other things more perishable, only as an insect, whose existence exceeds not two short hours of a summer's day, differs in point of longevity from the all-surviving raven, or the elephant.

solute existence, for destroy the figure by fusion, and it is no longer a needle, but a bit of steel: it might, however, be *bright* or *ruſty*, without affecting its nature as a needle, or a bit of steel. Brightneſs and rustineſs are, therefore, called *accidental modes*. The aptneſs of a needle to penetrate cloth and its capacity of taking a thread after it are called *properties*, and are immediately derived from its figure.

Modes are also either *absolute* or *relative*. An absolute mode belongs to the subject itself, as an *eye* and a *sharp point* are absolute modes of a needle, but its largeneſs or smallneſs can exist only with relation to others with which it may be compared; these are, therefore, called *relative modes*. Logical writers have further divided modes into *active*, *paſsive*, *natural*, *civil*, *moral*, *supernatural*, and many other claſses, but they only serve to encumber the mind, for he who knows the meaning of the words will be in no great danger of mistaking a *natural* for a *moral* mode, and *supernatural ones* so seldom occur, that the mind needs but little caution against errors on that head. Moreover, he who knows that *action* is the doing or performing something, and that *paſsion* is the bearing or receiving something from external agency, on perceiving a man hewing down a

tree with an axe, will readily discover that the man with his axe is *active*, and that the tree is completely *paſsive*.

As by comparing two objects one with another, we frequently become better acquainted with both, let us now finally observe, that a substance is in some degree to its modes, what a name is to a mental aſsociation of ideas, or, (as it has been called) a complex idea of reflection. The *substance*, which has a real existence in nature, is a *band* of *union* to its *modes*. And a *word*, as an instrument of the mind, is a *band* of *union* to *such* a *certain number* of *simple perceptions*, as *societies* of *men* have *united* for *their own accommodation*. The modes in a natural substance are subject to many variations, but the substance, whatever it be, is still the same. So the *simple perceptions* in a mental combination, are subject to be *changed* by fashion and circumstances, but the *name* remains the *same*.* It would be very difficult to discover, exactly, all the various modes resident in some complex beings, and it would be no leſs difficult to point out the exact number of simple perceptions which are united in many intellectual aſsociations under one name.

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* This is a source of error from which the Mathematical science is totally exempt.

THE

ESSENTIALS OF LOGIC.

PART THE SECOND.

CHAPTER I.

Of words.

WORDS, by which we mean articulate sounds, or aſsociations of letters, the representatives of such sounds, may be defined the principal vehicles, or signs, by which men communicate their thoughts to each other. Words, it has been said, *are the daughters of the earth, and things are the sons of heaven.* "Language," ſays Dr. Johnson, "is "only the instrument of science, and words are "but the signs of ideas." A word, however, representing a trope, cannot be considered as the appropriate sign of the idea meant to be conveyed. If, indeed, all words were the immediate and invariable signs of distinct ideas, it would be as easy to demonstrate a moral, legal, or philosophical question by the use of words, as to ſolve a mathematical problem by means of num-

bers. But a word often represents another word or words, is sometimes a substitute for a sentence, paragraph, or chapter, and is frequently used ornamentally, when it can hardly be said to signify any distinct idea whatsoever.

A numerical association may be easily analized, *i. e.* first resolved into inferior combinations, and at last reduced to simple units; these also may be readily joined together, so as again to make up the composition, and, as the name of each separate collection gives a clear notion of the exact number of simple objects composing it, there is little danger of error. Thus, on hearing the word pronounced which is the sign of the combination *six*, the mind readily knows that it is a composition of *six units*, which is equal to two smaller combinations denominated *three*, or to three still smaller associations denoted by the term *two*; and even all the higher compositions, which the mind cannot comprehend at first sight, by a little attention to order, may be resolved with the greatest accuracy.

But were we to attempt an investigation of the simple ideas included in the term *gratitude*, or *rescue*, and the order with which they are combined, we should not find it so easy a task.

It is for this reason, that philosophers take leave of language, and, whenever they posibly can, reduce their theories to mathematical proof.

When words are the immediate signs of ideas, they are only arbitrary sounds, which societies of men agree in adopting, as outward representatives of their thoughts, and have no natural connection with the ideas which they are intended to signify. Thus the Latins distinguished the appearance which ink produces on paper, by the term *niger*; the French call it *noir*; and the English *black*. It is true that, in many instances, a word stands for a single idea; as *one* is always the sign of *unity*, *white* signifies the colour observable in *snow*, &c. *yellow* the hue of an *orange*, &c. so with the word *black*, and most other simple ideas, and when it so happens, there is no difficulty, where people use the same language. But the greatest part of the words in all languages represent combinations of the mind, made up of a great variety of simple perceptions, to whose number, proportion, or arrangement, the names bear no analogy.

When the same word signifies two or more collections of ideas, we are frequently led into error. The word *pound* having been adopted by

the English, as the sign of several different associations of ideas, may, by one person, be conceived to mean a weight equal to 5760 grains, and by another 7000 grains, the former being the number of grains in the pound troy, and the latter in the pound avoirdupois weight.

Words are also *univocal*, or *equivocal*. A univocal word stands as the sign of *one idea*, or one *collection of ideas*; as *one* is never applied to any other idea but *unity*; and *manifesto* is used solely to denominate that multifarious combination comprised in a public declaration. Equivocal words are such as are applied to two or more different ideas; as the word pound is not only the sign of similar objects differing in point of quantity, but is also used to signify twenty shillings, and a pinfold or a prison to enclose beasts.* Nor is this to be wondered at, since we have an infinite number of ideas, for which there are no names; yet, with a strange profusion, two or more different words are sometimes used to signify the same idea, and then they are called synonymous, as *dwelling* and *habitation*, *residence* and *abode*.

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* Dr. WATTS has set down *book* and *house* as univocal words, yet Dr. SAMUEL JOHNSON attributes *five* different meanings to the word *book*, and *seven* to the word *house*.

The injudicious use of figurative words is the cause of much confusion, but the substituting of one word for one or two others, and, sometimes, a single word for a whole sentence, are more considerable sources of obscurity. As the word *however*, in French *Quoi qu' il en soit*, is frequently a substitute for *notwithstanding*; *be that as it may*; *suppose I grant you every thing you have said*; *in whatever degree*; and many other fragments. *Adieu* is evidently a substitute for *A Dieu je vous commende*, or, in English, I recommend you to God. In short, few of the great variety of words which grammarians rank under the general term *particles*, could be considered as representing any thing, till very lately, that an ingenious writer has made a considerable progreſs in the investigation of their abstract meaning.* It is very probable, that many single words, representing a collection of ideas, are no other than the first words, or titles, of certain sentences, orations, or colloquies, which, it is likely, were familiar in the primitive languages, till time had enveloped them in obscurity. So when we speak of *Credo*, or *Pater noster*, to a

* Vide Horne Tooke's ΕΠΕΑ ΠΤΕΡΟΕΝΤΑ, or Diversions of Purley.

member of the Christian church, these words excite in his mind, without reciting them, the full power and force of the *Belief*, or *Lord's Prayer*; and the word *regiment*, pronounced to one acquainted with all the regulations and etiquette of the army, would effectually excite in his mind the ordinances, customs, &c. of that institution.

Indeed, all the interjections in every language, if they mean any thing, are no other than substitutes for fragments, or whole sentences. *Alas*, in the following verse, is a substitute for *poor miserable beings as we are*, or some other words of similar import.

> *Alas!* how little from the grave we claim!
> Thou but preserv'st a form, and I, a name.
>
> POPE'S EPIST.

Again:

> In youth alone, unhappy mortals live;
> But, *ah!* the mighty bliſs is fugitive:
> Discolour'd sickneſs, anxious labour come,
> And age, and death's inexorable doom.
>
> DRYDEN'S VIRG.

Here *ah*, is a substitute for *to reflect on the following consequence is terrible*, or words tantamount to that meaning.

Though there may be no great danger of mistake in the above instances, other substitutions are certainly among the principal causes of error. These remarks will, nevertheless, in a great measure, account for the difficulty of reducing many combinations into the simple perceptions of which they are said to be composed. As, however, men are continually endeavouring to shorten their language, by introducing single words for sentences, and frequently single letters for words, that language might bear some tolerable proportion to the wonderful rapidity of thought, these difficulties are likely to increase. All, therefore, we can do, is, to be careful that, in the communication of our thoughts, we attach no other meaning to our words than what has prevailed by universal consent, and, if there be the smallest doubt, since our language has been reduced to some standard, we may easily have recourse to good authorities. Moreover, when we are about to contend, it would be well, perhaps, were we, as a preliminary, to enquire whether our opponents agree with us in the meaning of the words in dispute.

CHAPTER II.

Of definition.

DEFINITION is of two kinds. The first, called the definition of the *thing*, is a nomination of all the simple ideas, with a description of the order of their arrangement, composing a mental, natural, or artificial aſsociation, without regarding the name which represents it collectively; and the definition of the *name* is the verbal means used to inform another what idea, or aſsociation of ideas, any word or number of words are intended to signify.

The only objects subject to the first kind of definition are aſsociations of ideas, *i.e.* either combinations of those simple perceptions excited by their originals, which appear to exist in natural or artificial subjects; or mental combinations, which have no united existence but in the mind. Now, simple ideas, the principal part of which being only attainable through the medium of the senses, cannot be thus defined; for the definition of the *thing* consists in nothing more than an exact enumeration of the simple perceptions, as they are impreſsed on the mind, on an examination of

the subject in which their objects reside, with a description of their order of arrangement, and the properties their union produces, as far as our senses will serve us. And a definition of a complex idea of reflection, is an accurate enumeration of the simple ideas composing a mental association, together with their order of arrangement, &c. and all this, could it be effected, should be performed by the help of simple ideas, with names annexed to them, previously known to the reader or hearer.

Let us now make an effort to define a round *thing*, with which gentlemen amuse themselves sometimes upon a green. We should begin first by saying that it is a [*material being.*] Here we begin with a combination with which the reader, or hearer, is supposed to be acquainted; for a material being is a composition of magnitude, gravity, solidity, &c. [*of vegetable production.*] Here, also, vegetable production is a complex idea, which is supposed to be known by the reader, or hearer, if not, it must be reduced: [*of that kind called timber.*] Here, again, if the reader or hearer, be unacquainted with the general qualities of timber, the *difference*, or simple perceptions, discoverable by our senses, between that and other substances, must be nominated: [*and of that*

species of timber, called lignum vitæ.] The special difference between that and other wood, if the reader, or hearer, be ignorant of it, must also be noted: [*of a spherical form.*] But what is a *spherical form?*] That body, whose surface is formed by the extremity of right lines, of an equal and determinate length, proceeding, in all directions, from a point in the center. But what is a *right line?* It is that figure which an atom would describe in paſsing the nearest way from one point to another. We may yet be still far from having effected a definition, for *kind, figure, way, directions,* and several other combinations, may be also unknown to the reader, or hearer, all of which must, in that case, be reduced, the relative size, described, &c. to make the work complete.

It is neceſsary here to notice, that in this attempt to shew what a complete definition of this kind would be, all our observations have been employed about the *thing;* nothing having yet been said of the *name,* by which it is to be signified. This thing, then, the English have agreed to denominate a *bowl;* the Latins *globus;* it is, therefore, evident, that the name is arbitrary, and, but for the better convenience of understanding one another without the trouble of a special

description, every man might call it by a different name. This would be exactly similar to its having no other denomination than *thing*, which is so general a name, that it is applicable to all beings in the creation but persons. Now the verbal means, whatever they may be, which are used to direct the mind to the special word associated with a general notion of the thing which is to be signified, are what logicians call the definition of the name.

Thus, then, the definition of the thing is an accurate enumeration of the simple ideas contained in a combination, together with their order of arrangement, without noticing the collective name of the combination; and the definition of the name is effected by a *partial definition of the thing*, the pronouncing of a synonymous term, a verbal reference to the subject in which the thing resides, to its particular use, or by describing one or two of its properties, so as to excite in the mind a general notion of the thing associated with the particular term which is intended to be its sign. And to this sort of definition all simple ideas are subject, as: *That which is sour is an acid. Yellow is a colour observable in an orange. Light is the bright emanation of luminous bodies, which enables us to exercise the sense of*

seeing. Again, to define the word *respect*, it is necesſary we should say we mean *goodwill*, lest we should be supposed to signify no more than *common attention*.

The word *ring*, in one sense, may be defined by saying, *it is an ornament to be worn on the finger*; for, in a definition of the *name*, we always suppose our readers, or hearers, to have some previous knowledge of the *thing*, and we only inform them, in a brief manner, what the precise object is which the name is to signify. The word *house*, being equivocal, may be defined by the term *building*, or by saying it is a place in which men reside, to secure themselves from the inclemency of the weather; for when we speak of the *houses* of York and Lancaster, we mean two *families*, and not habitations. Again, to define the word *head*, to which there are attributed no leſs than thirty one different meanings, it would be sufficient to say, *that part of an animal which contains the brain*, or, in other senses, *the first place of honour*, &c. In fact, we seldom attempt any thing more than the definition of the name, nor is there any thing which causes more contention among the majority of mankind, than a want of due attention to this kind of definition. For it frequently happens, that two people mean very different

things by the same word, and, being both conscious they are right, immediately get impetuous; and so eager, frequently, is each to shew the absurdity of his opponent's aſsertion, that an indifferent person has no opportunity of setting them right.

Another consideration, also of great importance, should make us particularly solicitous to know the true import of words; for it is under the cloud of obscure, dark, and unintelligible terms, that the greatest imposition is practised. Quacks of all descriptions impose on the credulous by them. How frequently does affected sagacity, in giving an opinion of a malady with which it is totally unacquainted, shield its ignorance by the words *affection of the nerves*, *depression of the animal spirits*, and the like. Were, indeed, such pretenders urged to an explanation, they must either take refuge in lofty unmeaning terms still more obscure, or flatly acknowledge their ignorance. We should, therefore, never rest satisfied with any word which is either unintelligible or totally destitute of meaning.

It is, when we consider what an accurate definition of the *thing* is, that the incompetency of our knowledge shews itself in a most striking

degree; let us consider in what a labyrinth we should have been entangled, had we, in our eſsay to define a bowl, attempted to trace every combination up to the highest source, *i. e.* to have resolved each into the simple perceptions of which, according to Mr. Locke's theory, it must have been composed, and to which all our knowledge of things is reducible. After a little reflection, I am inclined to believe, we shall be obliged to confeſs, that we content ourselves with a very imperfect knowledge of things, and that, though mathematical combinations may be distinctly understood, we frequently know little more of other subjects, about which we speak and write, than the names by which they are signified. And, though logical writers detail rules for the resolution and composition of ideas with so much facility, I am of opinion they would be a little embarraſsed in reducing them to practice.*

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* Mr. DUNCAN, in his Elements of Logic, seems to consider this no very difficult task, for, page 101, he says, "Now in "tracing any very large number, when for the ease of the "mind we consider it at first as composed of various others still "leſser: if we next take these leſser parts to pieces, and pur- "sue them continually, until we arrive at the units out of "which they are composed; we thereby totally unravel the "collection, and being able to push our researches no farther, "rest satisfied in the view thus offered to the understanding.

"Just

Finding it tedious in the extreme, if not impoſsible, to effect a complete definition of the *thing*, i. e. to enumerate, in their exact order, all the simple perceptions contained in a large complex idea, when we attempt to define a thing without regarding its name, we are generally satisfied with reducing the aſsociation into combinations leſs complicated, and very seldom attempt the complete investigation of its first principles; and so, by this general proceſs, effect the resolution and composition of these unwieldy combinations with great facility. As in the preceding definition of a bowl, the inferior, or leſs complicated combinations, a *material being*, of that *vegetable substance called timber*, of a *spherical figure*, and of a *determinate size*, are commonly thought sufficient. Now this is a composition of general ideas, and it may be resolved again: first, by abstracting, or taking away its *figure*, and there will then remain a *material being of that*

"Just so it is in the examination of our complex ideas. For "when any very compounded notion comes under the inspec- "tion of the mind, in order to be traced to its first principles; "we begin with resolving it into other ideas leſs complicated; "and taking these again to pieces one by one, still go on with "the search, until we have broken the whole into our first and "simple perceptions, beyond which the pursuit cannot poſsi- "bly be carried."

substance called timber; take away next, the complex idea, *timber*, when *material being* will remain alone. Thus it is evident, that a general composition and resolution may be very easily effected. Still further, however, to facilitate the the buſineſs of definition, there are established two general terms of distinction, called GENUS and SPECIES.

Genus is a Latin word for *kind*, and *species* is a word of the same language, signifying *sort*. The mind, like the eye, being unable to take into its view, and examine a great variety of objects at the same time, and finding every individual thing in this world distinguished by some particularity, as men differ from one another, in features, stature, age, &c. it has, for its own accommodation, recourse to an ingenious method of arranging the different beings presented to its notice into claſses. This is done, by noticing some striking attributes or qualities, and arranging all those beings, poſseſsing such general characters, without regarding any other of their modes and properties, into one claſs. Thus all that tribe of animals which is covered with feathers, though differing in every other respect, as the stork and wren, is claſsed under the term *bird*. Now here, at once, we behold a *species*;

for birds are a species of animal; but animal is a larger idea, since, by taking notice of life and body only, it comprehends all living things; animal, therefore, is a *genus*, of which birds are a *species*.

Some species of beings are clafsed by no *absolute mode*, but by the element in which they live. Thus the inhabitants of the water, though differing as the whale does from the minnow, are clafsed under the term *fish*; and these again, agreeing in some general qualities, are divided, by naturalists, into forty seven *genera*, and four hundred *species*. So numerous and multifarious, indeed, are the productions of vegetation, that, without these distinctions, no considerable progrefs could have been made in the science of Botany; for, according to the statement of the most moderate adepts, the number already amounts to between six and seven hundred *genera*, comprehending more than ten thousand *species*.

The most general idea we can conceive, *i. e.* the highest *genus*, is denoted by the term *being*, because it implies nothing more than bare existence. *Body* is a *species*, of which *being* is a *genus*: a *mineral* is a *species*, of which *body* is a *genus*:

metal is a *species*, of which *mineral* is a *genus*: *gold* is a *species*, of which *metal* is a *genus*. Again, *body* is a *genus*, of which *animal* is a *species*: *mankind* is a *species*, of which *animal* is a *genus*: and the terms *white* and *black* will distinguish the species of mankind. To this we may add, place of birth, time of birth, name, &c. and thus particularize an individual.

It is evident, then, that as the idea of *being* is the most general notion of existence we are capable of framing; so the idea of *doing*, or the verb *to do*, is the highest genus of all ideas of action we are capable of framing; and the idea to bear, or suffer, is our highest genus of passion. All ideas of existence are *special*, with respect to simple abstract existence, and all ideas of action and paſsion are *special*, with respect to the abstract, general ideas of *doing* and *bearing*. Our most particular notions of existence, action, and paſsion, are those aſsociations of ideas which include all the eſsential, relative, and accidental modes, &c. together with time, place, circumstance, &c. descriptive of an identical being, action, or paſsion, at a particular time, place, &c. —It is also evident, that as *body* is a *species* with respect to the more general idea, *being*, so it is a *genus*, with respect to the more special idea, *mineral*.

Again, though mineral be a *species*, with reference to the more general idea, *body*, it is a *genus*, when compared to the still more special idea, *metal*. All the intermediate *genera*, between the highest *genus*, and the lowest *species*, are distinguished by the name of *subalterns*; and that genus, which has another genus between it and its species, is called the *remote genus*; and the one, whose species is immediately under it, is termed the *proximate genus*. Thus the genus *body* is remote with respect to its species *iron*, having between it and the *species*, the *proximate genus mineral*.* A *genus* is a name given to a rank of complex beings, agreeing in a few attributes; a *species* is formed by taking in a few more attributes, or modes, than are comprehended in the genus, which, of course, reduces its extent; as the name *animal* extends to more beings than the name *bird*; and were we to add attribute, property, and mode, till we have taken in all those which are known to exist in an individual, we actually, as far as our faculties serve us, enumerate the simple objects of perception, which are united in a

* Should the reader's curiosity prompt him to take a view of the ten categories of Aristotle, he will find these learned trifles, in a book entitled Harris's Philosophical Arrangements, dressed out in all the gaudy trappings of Greek and Latin.

natural combination, and thus compose, out of the most simple perceptions, a complex idea. And by the reverse operation, *i. e.* by taking away one idea after another, till we have reduced the collection to a simple attribute or two, which distinguish the highest genus, we resolve it again into its first principles. But this, as it has been observed, is generally impracticable; for many mental combinations are so amazingly complicated, and so little are we acquainted with the *essence* of things, which is said to distinguish the *species* from the *genus*, and one species from another, that we must, in almost every instance, content ourselves with a partial definition, *i. e.* with the enumeration of a few attributes, properties, modes, or characters, using, as it may be convenient, either words signifying combinations, or simple ideas, as the occasion may require, and so effect the best explanation we can, as far as the thing is known. And let us again notice, that, notwithstanding the pompous modes of definition described by writers on this subject, so *perfect in their kind*,* no man has yet completely adopted them, for all writers and speak-

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*. Mr. DUNCAN, in his Elements of Logic, p. 144, concludes his doctrine of definition in the following words: "Thus, "at length, we have not only deduced that peculiar form of a "defi-

ers invariably practice that kind of definition we have just described.

The following, however, is the compendious mode of definition, prescribed by logicians, and, though it be nowise equal to mathematical accuracy, it is admirably calculated to methodize the mind in disposing in order the objects about which it is employed.

The *genus*, and *differentia* or *specific difference*, are said to make a complete definition. They mean, by specific difference, the essential attributes, modes, or qualities, which are observed to exist in the *species*, more than those which are comprehended in the *proximate genus*, or genus immediately above: as *birds* are a species of the *genus animal*. The word animal, however, goes no farther than to comprehend body and life, or a living being. Now the specific difference between bird and animal is, that the body is covered with feathers, that it has two legs, two wings, a hard bony bill, &c. so that when we say *a bird is an animal whose body is covered with feathers*,

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" definition which obtains among logicians, but shewn it also to " be perfect in its kind, and to take in the whole compass " of language."

*and that it has two legs, two wings, and a hard bony bill,** we have given a logical definition of the species *bird;* or, in other words, we have added to the *genus animal*, the *specific difference*, and have thus completed the definition.

It would be tedious to begin all definitions by going up to the highest genus, and so come gra-

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* Here what has been before hinted, may be clearly noticed, for the terms used to indicate the specific difference, instead of being the signs of simple ideas, or clear and definite combinations, as is always the case in the mathematics, represent very complicated combinations, as the words *feathers*, *legs*, *wings*, and a *bony bill*, in the reduction of which other combinations would probably occur not lefs complicated. And thus it will appear, that it is not so easy a matter to *unravel a complex idea*, as Mr. DUNCAN expreſses it, who himself, I am inclined to believe, would find the following familiar axiom of his own, page 129, Elements of Logic, very difficult in the execution. "Two "things are therefore required in every definition. First, that "all the original ideas, out of which the complex one is formed, "be distinctly enumerated. Secondly, that the order and man-"ner of combining them into one conception, be clearly ex-"plained." And in the next page concludes, with as much ease as if any one could reduce it to practice: "When this is "done, and the idea wholly unravelled, we have nothing more "to do than fairly transcribe the appearance it makes on our "own minds." But he seems carefully to have avoided hazarding an example of its application: excusing himself by observing, that the shortneſs of his work will not admit of exemplification.

dually down to the object about to be defined. As in the preceding example, to have begun with the *genus being*, to have then taken in the specific difference of *body*, and, finally, *life* and its attributes; for the genus animal is supposed to be previously known to the reader or hearer, and sufficiently excited by its sign, the word *animal*. When, therefore, the ideas signified by the name of the genus, are completely known to the mind, and the specific difference is accurately stated and understood, then the *genus* and the *specific difference* may be fairly said to make up a complete definition.

Coin, or money, also, is a *genus* of which any particular piece is a *species*, and if we suppose the ideas, of which the word coin is made the sign, to be understood by the reader or hearer, we may join the specific difference, or number of ideas, which we observe to distinguish any particular piece, to the *genus coin*, and so make up the definition. But if the genus coin be not known, nor the higher genus metal, nor even the genus mineral, still more remote, we must begin with *body*, and join thereto the specific difference, to define mineral, and then take mineral as a genus, and add the specific difference, to define metal, and so we may proceed from

metal to gold coin; of a figure flat and circular, of a determinate diameter, bearing a legal impression, (which should be described, if not previously known,) weighing a little more than one forty fourth part of a pound, troy weight, current in Great-Britain, of the value of twenty-one shillings, and thus define a guinea.

When we can find the *eſsence*, as it is called, that is, any one grand attribute which constitutes the existence of a thing, a nomination of that eſsence completes the definition. Thus all bodies, whose outline or internal dimension describes a figure, or capacity, for which there is a name, may be defined generally with a single word. Suppose we take as a genus *measure*, we may effect the following definitions, by placing before it the word *ell*, *foot*, *inch*, *gallon*, *quart*, *pint*, each being the sign of its respective *eſsential difference* from the genus.

The eſsence too, when it can be discovered, will infallibly direct us in distinguishing species from species, and one individual from another. But many things are so nearly alike, and we are so little acquainted with the real eſsence of them, that we must rest satisfied with the best distinction of their difference which our faculties enable us to

obtain. In fact, wherever we find a substantive and adjective, or two substantives depending on each other, there is *genus* and *differentia* or *definition*, as *a black man*: here man is the *genus*, and black the *specific difference*.—*A pleasant day*: day is the *genus*, and pleasant denotes the *special sort*.—*A man of great wisdom*: man is the *genus*, and the words, *of great wisdom*, add another attribute, and forms the *differentia*.—*The land of liberty*: land is the *genus*, and the following attribute, signifying the *specific difference*, completes the definition. In short, though the doctrine of *genus* and *differentia* has fallen much into neglect, a proper attention to it will be found of infinite advantage, as it certainly forms the principal business of language.

By attentively observing the means used in common language, we may easily discover what ingenious contrivances men have adopted to facilitate definition. Nay, four of the parts of speech, in every language, are dedicated solely to that business, and a fifth is very commonly so employed, as will appear by the preceding and subsequent examples.

Example of the ARTICLES.—The word *man*, which distinguishes not between the whole hu-

man race and an individual, by the addition of the article *a*, is made to signify *any man*, and by the article *the*, it becomes still more definite, as distinguishing *a man*, the idea of whom is then within the view of the mind.

Example of the ADVERB.—The verb *to sing*, may be defined by the adverb *charmingly*, which is the *specific difference* between an indefinite mode of singing, and that which has the power to charm.

Example of the PREPOSITION.—A man *beyond* the sea: here *beyond* is an instrument to define the local situation.—A calf *with* two heads: here the preposition *with*, joins the particularity which distinguishes that monster to the complex idea of a calf, and completes the definition. Thus it appears, that we never speak or write many words without being engaged in definition, though most of us are, perhaps, unconscious of it. Surely, then, the help of system must be of infinite advantage; but this will appear more forcibly as we proceed. If this subject alone were our particular business, much more might be added, but the nature of the object in view obliges us now to pursue our present design.

THE

ESSENTIALS OF LOGIC.

PART THE THIRD.

CHAPTER I.

Of the first degree of human evidence.

THE highest and most certain of all human evidence, is that which the mind obtains, on examining two ideas which it has received through the medium of different organs of sensation. If, for instance, the idea of the colour of an orange, and that of the sound of a bell, be presented for its consideration, their difference is so irresistibly obvious, that the mind, without a moment's reflection, is ready to pronounce, that *the colour of an orange is not the sound of a bell.*—Another obvious truth of the first degree of evidence, and with which logical writers generally exemplify, is, that *the whole is greater than any of its parts:* and, again, that *all the parts are equal to the whole.*

In the preceding, and all other instances where the mind, on contemplating two or more ideas, is able instantly to affirm their agreement or disagreement, without using any means to direct its determination, or calling to its aid a third idea, the immediate knowledge which is thus obtained, is called *intuition*; from the Latin word *intuitus*, *i. e.* having regarded, or looked upon. The form of speaking, or writing the affirmation, (for in either case we affirm that it is, or it is not,) which is the result of the examination, is called a proposition; thus the words used in the preceding affirmation, *the colour of an orange is not the sound of a bell*, compose a proposition, and so do those which affirm that *the whole is greater than any of its parts*: and again, that *all the parts of any thing are equal to the whole*. All propositions of this kind are called self-evident, because they signify intuitive judgment, *i. e.* a judgment which the mind instantly forms by its own native faculties on contemplating and understanding the ideas, about which the proposition presents a determination. And when, in tracing back the evidence, from our most remote deductions, we arrive at the *intuitive* source, we discover it to be the fountain head of all ratiocination.

The form of a proposition will be our next consideration.

CHAPTER II.

Of simple propositions.

THE word proposition is derived from the Latin *propositio*, and may be defined a sentence in which any thing is affirmed.

A simple proposition is a single sentence, representing an affirmation of the agreement or the repugnance between two simple ideas, or asſociations of ideas, whether the judgment be grounded on *intuition*, *demonstration*, or taken on *testimony*: as,

Man *is* **mortal.**
Gold *is not* **animated.**

The term whereof we affirm is called the subject, as *man*, and *gold*, in the preceding examples; and the term with which the *subject* is said to agree, or disagree, is called the *predicate*. Thus *mortal*, and *animate*, printed in black letter, are the two predicates in the preceding propositions. The word, or words, representing the act of the mind in affirming, are called the *copula*, as *is*, and *is not*, in the two examples; and it must always consist of some inflection of the verb *to be*, either expreſsed, or implied.

It is not neceſsary that one sort of proposition should be always made up of three terms, as in the first example, nor that the other should consist of four, as in the second; for very frequently the copula is included in the predicate: as,

I think.

Now this implies a complete proposition, for it signifies,

I *am* thinking.

I *am*,

That is,

I *am* existent.

There *is* something.

That is,

Something *is* existent.

It rains.

That is,

Rain *is* falling.

For, notwithstanding the peculiarities of language, means may be found to expreſs the three parts distinctly.

It frequently happens, that many words are used to expreſs the combination of ideas which is to form the subject, or the predicate of a proposition: as,

A man lame with the gout walks slowly.

Now, the subject, *a man lame with the gout*, indicates but one aſsociation of ideas, for which there happens, in English, to be no one name exactly including them all, and no more; but if we use a term a little more general, or, in other words, take away a few of the ideas included in the combination, namely, those which define the cause of lameneſs, we shall find one English word which will exactly fit the remainder; that is, the word *cripple*, and thus the proposition will have a simple appearance: as,

A cripple walks slowly.

Let us now view an example wherein both the subject and predicate exhibit a complexity in the terms, *i. e.* are made up of many words, and yet represent one aſsociation of ideas really existing together, to signify which, (in English at least,) no single term has yet been adopted; and therefore they must be made complete by the help of some instruments of definition, either to add something to an aſsociation the mind may make choice of, that is somewhat deficient, or to take away what is superfluous, should the mind find it more convenient to choose an aſsociation which is superabundant: as,

A *light* carriage *with four wheels, without a coach-box,* runs *swiftly on a road completely level.*

Here it is plain, that all the words in italics are used as instruments to make up and adjust those combinations for which the English have provided no single names. *Light* defines its gravity: *with* adds four wheels: *without* takes away the coach box: *swiftly* adds the mode of motion: *on a road* denotes the place: and *completely level* joins a mode to road. Now the term *Phaeton*, used metonymically, it is evident, frequently stands as a substitute for all the words which compose the subject; and the word *plane* may represent the predicate.

It will appear also that a proposition is not confined to any particular order of arrangement, and that the parts therefore can only be distinguished by attending to the ideas which are meant to be conveyed. This depends, in some instances, upon the idiom of the language, as the Latin word *erit* implies a complete proposition, signifying, *he will be existent*: and if the subject may be said to be distinguished in any part of the word, it is in the last letter. All the parts of a proposition, in English, may be transposed as the occasion may invite: as,

In America there *are* many large rivers.

That is,

Many large rivers *are* existent in America.

Thus we see the predicate stand first.

Again:

It *is* **lamentable** that men should be unable to avoid the dreadful calamity of war.

Here the word *lamentable* is the predicate, and all the rest, except the copula, belongs to the subject: for we may diſcard the pronoun *it*, which represents the real subject, and the propoſition will run thus,

That men should be unable to avoid the dreadful calamity of war *is* **lamentable.**

Hence it will appear easy to discover the parts of a proposition, however transposed or complicated, if we attend to the ideas the words are designed to represent.

When the subject of a proposition, or the predicate, or both, are made up of many words to complete a particular aſsociation, as above, the proposition is called *complex*. These logical writers unneceſsarily divide into a great variety of claſses; unneceſsarily, most certainly, for they overload the mind with useleſs distinctions,*

* To shew how trifling these distinctions are, let us quote a paſsage from Dr. Watts's Logic, page 164, on two of the different sorts of complex propositions. "If the term which is "added to the subject of a complex proposition be either "eſsen-

all of which amount to no more than what has been just exemplified, that is, to make up some asociation of ideas for which there is no single name.

A proposition is also said to be complex when the pronoun *who*, *which*, or any one of their oblique cases, is used in the subject, or predicate: as,

The youth [who **cultivates his understanding**] *is* **commendable.**

The fribble [whose whole study *is* **to ornament his sweet person**] *is* **despicable.**

In each of the preceding examples there will appear a proposition within a proposition. That

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" esential or any way necesary to it, then it is called *explica-*
" *tive*, for it only explains the subject; as, *Every mortal man is*
" *a son of Adam.* But if the term added to make up the com-
" plex subject does not necesarily or constantly belong to it,
" then it is *determinative*, and limits the subject to a particular
" part of its extension; as, *Every pious man shall be happy.* In
" the first proposition the word *mortal* is merely *explicative*: in
" the second proposition the word *pious* is *determinative.*" To prove that this distinction is unnecesary, though it must be confesed that it really exists, does not require a single sentence; for it is enough to know, that whether an *explicative* or *determinative* word be used, or even an *incident proposition*, nothing more is meant than to determine the particular asociation of ideas which is to form the subject, or the predicate, of a proposition.

which stands within crotchets is called the *incident*, and the other the primary proposition.

In all the preceding examples it will be found that the subject and predicate are connected by a simple copula. This is always the case in the primary mode of expreſsion, *i. e.* in the mode which grammarians call the *indicative*. But the copula is often influenced by certain terms, such as *can*, *could*, *may*, *might*, *will*, *would*, *must*, *ought*, or *shall*, which, from their use in signifying the mode or manner of the connection, are by some called *modi*. Now, whenever any of these auxiliaries affect the copula, the proposition is called *modal*. Thus, if I say, *I write a letter*, the proposition is called *pure*; but, if I make use of either of the preceding auxiliaries, and say, I *may*, *can*, *might*, *should*, *would*, *must*, or *ought to write a letter*, the proposition is called *modal*. For the agreement or repugnance between the subject and predicate of a *modal* proposition is not actually affirmed, but only the *poſsibility*, *power*, *will*, *liberty*, *chance*, or *neceſsity* of its being so.

CHAPTER III.

Of compound propositions.

WHEN there are two or more subjects, to which the predicate will apply separately, or two or more predicates separately applicable to one subject, the proposition is called *compound*: as,

> Mercury, Venus, the Earth, Mars, Jupiter, Saturn, and the Georgium Sidus, **move round the sun.**

Now this may be resolved into seven distinct propositions: as, *Mercury moves round the sun. Venus moves round the sun,* &c.

Again:

> The term vegetable is **applied to trees, shrubs, flowers, herbs, grass,** &c.

This example may be resolved into five distinct propositions: as, *the term vegetable is applied to trees. The term vegetable is applied to shrubs,* &c.

Sometimes a compound proposition runs at considerable length: as,

> " It **seems necessary to the completion of a dictionary, de-**
> " **signed not merely for critics, but for popular use,**
> " [that it should comprise, in some degree, the
> " peculiar words of every profession;] [that the

" terms of war and navigation should be in-
" serted, so far as they can be required by read-
" ers of travels, and of history;] and [those of
" law, merchandise, and mechanical trades, so
" far as they can be supposed useful in the oc-
" currences of common life."]

Johnson's Plan of an English Dictionary.

In the preceding example, the words in black letter are predicated, and the remaining part of the sentence, consisting of three inferior propositions, compose the subject; for, as they all depend upon one principal predicate, they are considered as one compound subject, and being collectively conceived in the mind, are represented by the pronoun *it*, which has the first place. The real subject will be discovered, by asking, what seems necessary to the completion of a dictionary? &c.—the answer is, *that it should comprise, in some degree, the peculiar words of every profession*, &c.

As a number of words, when employed to compose one combination, do not make a proposition compound, so, sometimes, that which appears to be a simple proposition, shall, nevertheless, in effect, be compound: as,

Health is **the greatest blessing**.

Now here the word *greatest* implies, by relation, that there are other blessings, so that the

words, *of the many that men enjoy*, are understood, which, being read after those expreſsed, will make the sense complete, and constitute two distinct propositions. These may, otherwise, be thus resolved:

Men enjoy many bleſsings.
Health is the greatest bleſsing.

There are many similar instances where the proposition expreſsed implies a latent one, which logical writers notice under several heads, but with a small share of common sense and attention they may be readily discovered.

Sometimes a *conditional* and a *pure* proposition are compounded: as,

If we have sense,
Modesty shews it to the best advantage.

These two propositions collectively form what is called a *conditional* or *hypothetical* proposition. The first is called the *antecedent*, and the second the *consequent* proposition.

Logical writers divide compound propositions into *copulative*, *causal*, *relative*, *disjunctive*, *hypothetical*,* and many other claſses. Some of them

* We shall prove, in its proper place, that most of the propositions called *hypothetical*, and many of those called *causal*, are familiar syllogisms.

obtain their denominations from the particle used in the composition of their subject or predicate; and others, from very obvious reasons, which are easily discoverable to those who know any thing of grammar; but it will appear, as we proceed, that we have preserved quite as many distinctions as are really neceſsary.

CHAPTER IV.

Of affirmative and negative propositions, or a division according to their quality.

WHEN we first noticed what constituted a proposition, we observed, it was the words in which the mind affirmed its judgment either of the agreement or the repugnancy between two ideas, or aſsociations of ideas. We have also seen, that it is the particular buſineſs of the copula to indicate this agreement or repugnance. When a single negative particle accompanies, and stands with it, between the subject and predicate, it is evident that the effect of the copula, which declares that one thing belongs to another, is removed: as,

Gold *is not* animated.

Thus animation is declared not to belong to gold; and here it is sufficiently manifest, that the negative particle removes the effect of the copula *is*, and that it has nothing to do with the subject and predicate. Sometimes, however, the negative particle stands remote from the copula, and some little consideration is necessary to discover whether it be used as a part of the subject or predicate; or is intended to operate upon the copula: as,

Not a single day, by men who wish to cultivate their understanding, should be spent in idleness.

Here we may observe, that the particle *not*, though standing so remote, affects the copula, and makes the proposition mean the contrary to what it would without it; for the proposition, when regularly stated, will stand thus:

Men who wish to cultivate their understanding, should *not* spend a single day in idleness.

There are many instances where one or more negative particles are used in a proposition, yet neither of them affects the copula: as,

A man of *no* religion *is* an infidel.

Again:

No man well educated *is uninformed*.

This is the same as saying, *all men well educated are informed.*

Thus it appears, as we have before observed, that attending to the ideas meant to be conveyed, rather than the arrangement of the words, is the surest way of discovering the respective parts of a proposition.

Let it here be carefully noticed, that though propositions be called *affirmative* and *negative*, yet in fact they are all *affirmative*; for the declaration of a repugnance between two ideas is no leſs affirmative than the declaration of an agreement,*

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* Dr. WATTS, in following other writers, was led into an error in this respect, as appears in his Logic, note the first, p. 157, where he says, "As there are some *terms* or *words*, and "*ideas*, (as I have shewn before,) concerning which it is hard "to determine whether they are *negative* or *positive*, so there are "some *propositions* concerning which it may be difficult to say, "whether they *affirm* or *deny*: as, when we say, *Plato was no* "*fool*: *Cicero was no unskilful orator*: *Cæsar made no expedition to* "*Muscovy*: *An oyster has no part like an eel*: *It is not neceſsary for a* "*physician to speak French*: And, *for a physician to speak French is* "*needleſs*. The *sense* of these propositions is very plain and easy, "though logicians might squabble, perhaps, a whole day, whe- "ther they should rank them under the names of *negative* or "*affirmative*."—Now, can any thing be clearer than that there is

and though we have followed the beaten track, it is, most assuredly, an improper mode of distinction.

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a distinct repugnance between *Plato* and *folly*: *Cicero* and an *unskilful orator*: And that an *expedition into Muscovy* was not *one of the expeditions of Cæsar?* The same repugnance might be observed in all the other instances Dr. WATTS has stated. We should, perhaps, be under less difficulty, in determining to which class such propositions should be referred, were the terms *congenial* and *repugnant* substituted to distinguish the quality of propositions, for *affirmative* and *negative*.

CHAPTER V.

Of universal and particular propositions, or a division according to their quantity.

UNIVERSALITY, as applied to a proposition, signifies, that the *subject* thereof comprehends every person or thing of its *kind* or *sort*: as,

Every thing in the universe displays the Creator's wisdom.

Every primary planet gravitates towards the Sun.

All the inferior planets move within the earth's orbit.

The sun is the center of our system.

Now these propositions are all universal. The subject of the first, indeed, extends to every thing in the universe. The second comprehends only *Mercury*, *Venus*, the *Earth*, *Mars*, *Jupiter*, *Saturn*, and the *Georgium Sidus*, but it is, nevertheless, universal, because there are no other primary planets. The third subject is still more contracted, for it comprehends only *Mercury* and *Venus*, but it is, nevertheless, universal, since there are but these two *inferior* planets. And the fourth is universal, for there is but one Sun, at least in our system, and therefore the term Sun

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extends to every thing of its kind that we know of with certainty.

These propositions are called *universal affirmatives*, and, when the subject extends to more than an individual, are usually preceded by the universal signs *all* or *every*. Again:

No mineral is animated.

No inferior planet is so large as the Sun.

Mount Vesuvius is not situated in Great-Britain.

These three propositions are called *universal negatives*. The subject *mineral* is a term representing many things; but as the particle *no*, signifying *not one*, restrains the whole tribe in a state of repugnance, it is called an *universal negative*. The subject of the second represents two orbs only, but yet, as there are no more of that special sort, the particle *no* restrains the whole of that class, and the negation is *universal*. The subject of the third signifies an individual, but, as there is no more than one *Mount Vesuvius*, it comprehends the whole; the particle *not* restrains it in a state of repugnance, and it must therefore be ranked as an *universal negative*.

Now, though we call *the whole proposition* an universal affirmative, or an universal nega-

tive, it is clear that these distinctions *belong to their subjects alone.*

In some propositions the subject is broken, and the predicate applies to an indefinite part only of some whole class: as,

Some minerals *are* **metal.**

Now here it appears, that the word *some* limits the subject *mineral*, and the predicate *metal* is only affirmed to belong to a part of the beings that the subject would otherwise signify, for this reason, such propositions are denominated *particular affirmatives.*

A mark of limitation, also, frequently restricts the subject of a negative proposition: as,

Some men *are not* **wise.**

Thus the predicate *wise* is affirmed to be repugnant only to a part of mankind, as appears by the term of limitation *some*, and the proposition, therefore, is called a *particular negative.*

When a word appears as the subject of a proposition, unaccompanied by *all*, *every*, *some*, *a few*, *no*, *none*, *many*, *this*, *that*, or any other sign of identity, universality, or restriction: as,

Animals *are* **mortal.**

The proposition is always ranked with universals; the followlng instances, however, may appear to be exceptions:

Men *are* vertitful.

This, if we mean only *some men*, is a *particular affirmative*.

We also say,

Women *are inconstant*.

Meaning, perhaps, only, that *some women* are *in*constant, and this is a *particular negative*, but such irregularities as these are evidently owing to a careleſs, or rather an imperfect mode of expreſsion, and scarcely deserve to be considered as exceptions to the general rule.

Before we dismiſs this subject, I shall just take the liberty of remarking, that much has been said about the *conversion* and *opposition* of propositions, a subject treated of at large in the *Analytics* of Aristotle; but I cannot conceive this doctrine to be of any real use. Dr. Reid, and Lord Kaims, whose opinions are entitled to great respect, seem, in general, to have entertained the same opinion, yet, his Lordship, vol. iii. page 415, "Sketches of the History of Man," says, these discoveries are not entirely without use.

But I shall say, as his Lordship has of *modal syllogisms*, "Let this doctrine rest in peace without giving the least disturbance to its ashes." With respect to the divisions called the *ten categories* and *five predicables*, it will be sufficient to say, that the first is an attempt to clafs every word that can pofsibly form the subject or the predicate of a proposition, under one of ten general heads, and that the second is an attempt to reduce all the pofsible relations that can exist between a subject and a predicate under one of five general heads. But these doctrines, even as improved by modern writers, are doubtlefs very imperfect, nor do I think that the perfection of them would be of any real advantage to the ESSENTIALS OF LOGIC.

THE

ESSENTIALS OF LOGIC.

PART THE FOURTH.

CHAPTER I.

Of the second degree of human evidence.

HAVING noticed the various modes of language, in which the judgment of the mind is expreſsed, or, in other words, having viewed the doctrine of propositions, it may be observed, that, in communicating our thoughts, we cannot utter or write one sentence without using a proposition. In an interrogation, we enquire whether the predicate be applicable or repugnant to the subject; in the imperative mode of expression, we command the agreement or disagreement of the predicate with the subject; in the optative, we wish for their agreement or disagreement; in the potential, we signify the poſsibility of their agreement or disagreement; so that propositions are continually in use. It is by their means we attribute the mode to its proper sub-

ject, the individual to its species, the species to its genus, and their properties and relations to things themselves. Since, then, propositions are used to expreſs the judgment of the mind, formed under such an infinite variety of circumstances, on the innumerable objects which present themselves for our consideration, it is no wonder that logicians, in attempting to claſs them too minutely, should have rendered the subject tedious and embarraſsing.

When we first noticed propositions, in considering the first degree of human evidence, we treated only of those which were self-evident, but many instances may be observed, in the preceding examples, where the judgment on which the affirmation is formed is not grounded on intuition. Two or more objects frequently indeed present themselves for our consideration, whose agreement or repugnance is not immediately discoverable. For example: we will suppose that a goldsmith is offered a piece of yellow metal, and asked to affirm whether it be, or be not gold: having discovered a particular quality by which gold is distinguished from other metals resembling it, he immediately affirms that [this piece of yellow metal is gold.] On being asked why? he answers, [because it *resists aqua fortis*.] But

what proof has he that gold only will resist aqua fortis? This he must admit on his own previous experience, or take it for granted on the testimony of others. If then he were to give an answer in writing, and state his reason completely, in familiar language, he would say, [this piece of yellow metal is gold, because it *resists aqua fortis*; and all yellow metal which *resists aqua fortis* is gold.]

This reasoning is doubtless very good; but Aristotle, discovering that this proof was, in some degree, mathematical, singled out the *subject*, *predicate*, and *reason*, by which they may be affirmed to agree, or disagree, and placed them thus:

Major Term.	Middle Term.	Minor Term.
Gold.	*Resists aqua fortis.*	This piece of yellow metal.

Here the *reason* by which the preceding subject and predicate have been proved to agree, is placed between them, and called the *middle term*; for though it were composed of ever so many words, they are still, in logic, denominated a *term*. The predicate has the first place, and is called the *major term*; the subject stands last, and is called the *minor term*, as in the preceding arrangement. Both the major and minor terms

often consist of many words, but the whole collection is, nevertheleſs, denominated a *term*. It was next to be considered, which was the most obvious and methodical order of language in which to exhibit the proof. And it was found best to compare the *predicate* with the middle term in one proposition, and the *subject* with the *middle term* in another proposition, and, finally, to affirm the agreement or repugnance of the subject and predicate, according to the proof, in a third proposition: as,

ALL YELLOW METAL WHICH *resists aqua fortis* is **gold.**
This piece of yellow metal *resists aqua fortis*;
Therefore this piece of yellow metal is **gold.**

Thus far the arrangement of Aristotle is useful, but the superstructure by him and his followers, has, doubtleſs, contributed greatly to bring the whole system of logic into contempt.

The preceding is an example of what is call- the art of reasoning; the evidence thence obtained is called *demonstration*; and the form of words, or the three propositions in which the proof is stated, is called a *syllogism*: the component parts of which we shall examine as we proceed.

The judgment deduced by reasoning, as in the preceding example, is called demonstration, from the Latin word *demonstratio, i. e.* a clear proof. Thus, whenever a predicate is affirmed of a subject, in consequence of a previous proof, the proposition, which represents such a judgment, is of the *second* degree of human evidence.

CHAPTER II.

Of the use of syllogisms.

SYLLOGISM, Συλλογισμος; from σὺν, and λογίζομαι, signifies *collectio quæ ratiocinando fit*, *i. e.* a conclusion which may be made by reasoning; so that wherever an agreement or repugnance between a subject and a predicate is affirmed, and a reason *why* assigned, there is a syllogism, according to the primitive meaning of the word. But the Greek schools having prescribed particular rules for the arrangement of the language in a sort of mathematical order, the term syllogism has been since applied to these particular modes of arrangement, and not to every act of reasoning, in whatever order found.

By a proper knowledge of *syllogism*, and an acquaintance with *mood* and *figure*, it was formerly thought that men could discover, from theorems, or intuitive truths, which the mind instantly acknowledges, those which are more remote and not reducible to its determination but by means of intermediate steps; this opinion, however, had not the least foundation in truth.

Mr. Locke says, " the only use of syllogisms " is, to shew the connection of proof in any in- " stance; nor, continues he, are they of any " great use even here; since the mind can per- " ceive such connection where it really is, as " easily, nay, perhaps better, without them. " We find men reason very strongly, who do not " know how to make a syllogism." The same writer justly observes, that " this way of reason- " ing discovers no new proofs, nor makes any " discoveries, but is wholly conversant in mar- " shalling and ranging those we already have: a " man must know, before he be able to prove " syllogistically; so that the syllogism comes af- " ter, when we have but little use for it."

" If syllogism must be taken for the only " proper instrument of reason and measure of " knowledge, (continues Mr. Locke,) it will " follow, that before Aristotle there was not one " man that did, or could know any thing of " reason; and that since the invention of syllo- " gisms, there is not one in ten thousand that " doth. But God has not been so sparing to " men, to make them barely two-legged crea- " tures, and left it to Aristotle to make them " rational.————God has been more bountiful " to mankind than so; he has given them a mind

"that can reason without being instructed in "methods of syllogizing."

All this is very true; but the same may be said of grammar and rhetoric. God has given to men the faculty of speech, which they can exercise without being instructed in grammar, or rhetoric; but surely it cannot be inferred, that, therefore, grammar and rhetoric are useleſs. The idea of introducing syllogisms generally into writing or conversation is ridiculous; men (as Mr. Horne Tooke justly observes) are ever endeavouring to shorten their language, that it might bear some tolerable proportion to the rapidity of thought, and therefore can never submit to such tedious repetition. But is the syllogism to be discarded, and no other system erected? What! shall reasoning, become vagrant, be suffered to wander in irregularity, because the syllogism does not poſseſs all that perfection ascribed to it by Aristotle and his followers? A celebrated stoic says, "since it is reason which sets "in order and finishes all things, it ought not "itself to be left in disorder." Surely it is neceſsary we should know what reasoning is, where it begins, how far it serves us, and where it ends. Can we know this without analysis, without being able to distinguish its respective

parts? It is true, that the doctrine of mood and figure is an useleſs, though an ingenious, invention, and that many of the stoic distinctions, respecting propositions, are of no considerable importance: but the syllogism is certainly the best analysis of reasoning which has yet been discovered. What I maintain is, that the first principles of reasoning are very simple; that the parts of reasoning have never yet been clearly distinguished; that the syllogism, with a little explanation, will exhibit a complete analysis; that there are many errors in our reasoning concealed under the surface of familiarity; and that the syllogistic order is a general standard into which every familiar form of reasoning may be transposed, for the purpose of examination. In short, I shall endeavour to shew, that the syllogism is to reasoning, what a gauge, or a scale, is to some branches of mechanism; that is, a test by which the accuracy of every operation may be proved. If I fairly prove this, it will certainly follow, that syllogistical knowledge is of some importance.

CHAPTER III.

Of simple or categorical syllogisms.

A simple or categorical syllogism consists of three propositions, shewing the reason why two ideas are affirmed to agree, or disagree with one another, by means of a third idea: as,

ALL *vicious men* are despicable;
Every libertine is a *vicious man;*
Therefore, every libertine is despicable.

Libertine and *despicable*, *i. e.* the subject and predicate to be proved, are called the two extremes, and the words *vicious men*, or reason *why* they are affirmed to agree or disagree, is called the middle term. Let us again state the matter in order:

Major Term.	Middle Term.	Minor Term.
Despicable.	*Vicious man.*	Every libertine.

These three terms, unassociated with other words necessary to form them into propositions, are called the *remote* matter of a syllogism, but when formed into a syllogism, as,

Major. ALL *vicious men* are despicable;
Minor. Every libertine is a *vicious man;*
Conclusion. Therefore, every libertine is despicable.

The three propositions are called the *proximate* matter. Here it will be seen, that the *major term* is printed in black; the *middle term* in italic; and the *minor term*, copulas, and signs of reasoning, in roman letter. That proposition which contains the major term, or the predicate of the conclusion connected with the *middle term*, is called the *major proposition*, and is placed first, as exemplified. That in which the minor term, or subject of the conclusion, is joined to the *middle term*, is called the *minor proposition*, and has the second place. These two propositions, one comparing the middle term with the predicate of the conclusion, and the other comparing it with its subject, are called the *premises*. The *middle term* itself is frequently called the *argument*. And the proposition, in which is affirmed the agreement or repugnance of the two extremes, *i. e.* of the *major term* and *minor terms*, stands last, and is called the *conclusion*, as in the preceding example.

Let it be particularly remembered, that the predicate of the conclusion is always the *major* term, and the subject of the conclusion is always the *minor* term.

In the preceding example, it is first admitted, or taken for granted, that the predicate of the conclusion *despicable* might be attributed to the middle term *vicious men*; and it is evident that *libertines* are included in the term *vicious men*; or, in other words, that *libertinism* is a *species*, of which *vice* is the *genus*. And it is an axiom in logic, that *what might be affirmed of a genus, might be extended to every species comprehended under it, and what might be affirmed of a species, might be also affirmed of every individual comprehended in the species*, but not *vice versa*. Again,

Maj. THAT WHICH *improves the mind* is **useful**;
Min. Study *improves the mind*;
Con. Therefore, study is **useful**.

Here also we admit, on the ground of experience, that *usefulnefs* might be attributed to *the improvement of the mind*. We then find study to be comprehended in the number of things which tend to improve the mind, and, therefore, attribute usefulnefs to study individually, because it is one of the number of things to which that attribute has been ascribed in the major proposition, on the ground of experience. This surely needs no comment.

Let it be carefully remembered, that the subject of the proposition to be proved is always the *minor term*, and that its predicate is always the *major term*, though each be composed of ever so many words. And as no progreſs can poſsibly be made in the art of reasoning, unleſs these distinctions be remembered, let us again observe, that the premiſs, in which the major term is found is always called the *major proposition*, and that in which the minor term is found is always called the *minor proposition*.

It is to simple syllogisms that the stoic doctrine, of *mood* and *figure*, is applicable; but as moods would never have been thought of, had the principles of reasoning been better understood, let them, without reproach, be consigned to oblivion.

What logicians mean by *figure*, is the particular situation of the *middle term*, with respect to the *major* and *minor* terms. There are four figures, but the first is amply sufficient for every purpose to which we shall apply the use of syllogism.

In the first figure, the *middle term* is the subject of the *major proposition*, and the *predicate* of the *minor proposition*: as,

1.

Maj. THOSE WHO *know that exceſses will cause disease* should be **moderate**;
Min. Wise men *know that exceſses will cause disease*;
Con. Therefore, wise men should be **moderate.**

2.

Maj. THAT WHICH is *prudent* is not **blamable**;
Min. To conceal involuntary emotions of anger is *prudent*;
Con. Therefore, to conceal involuntary emotions of anger is not **blamable.**

3.

Maj. THE *aged and poor* are **proper objects of our charity**;
Min. Some of the most profligate are *aged and poor*;
Con. Therefore, some of the most profligate are **proper objects of our charity.**

4.

Maj. THINGS *offensive to delicacy* should not be **used**;
Min. Some words are *offensive to delicacy*;
Con. Therefore, some words should not be **used.**

As it is of the utmost importance to the art of reasoning, to distinguish clearly the remote matter of a syllogism, the major term will always appear

in black; the middle term in italic; and the minor term, copulas, and signs of reasoning, in roman letter. The words in small capitals remain yet to be accounted for.

Now these four are all the kinds of simple syllogisms that can posibly be necesary, even admitting the division of Aristotle, for the first presents a proof that [wise men should be moderate,] which is an universal affirmative proposition. The second proves, that [to conceal involuntary emotions of anger is not blamable,] which is an universal negative. The third proves that [some of the most profligate are proper objects of our charity,] which is a particular affirmative. And the fourth proves that [some words should not be used,] which is a particular negative.

These being the general heads, under which propositions have hitherto been distinguished, every example must belong to one or the other of these four clases.

Here let us again observe, that the syllogism is the best analysis of reasoning that has yet been offered to mankind. But it is not a perfect analysis, without some explanation. The *major*, *middle*, and *minor terms*, are distinctly seen in

black, *italic*, and *roman letter*, it is true, but there are certain words in capitals, such as *all*, *every*, *no*, *none*, *whosoever*, *whatsoever*, *those who*, *that which*, &c. preceding the middle terms, as the subjects of the major propositions, whose proper use has never been clearly explained.

Here then, having pursued, with very little variation, the track marked out by Aristotle, and in which most of the subsequent writers have trodden with exact formality, though each of them has been particular in choosing a fashionable travelling dress, suitable to his peculiar fancy; let us now most respectfully beg leave to bid them adieu, as they are about to pass through the dark, gloomy, and bewildering forest of mood and figure, directed by the *quantity* and *quality* of their propositions, and we are about to explore a rout, which I do not know that any one has ever travelled before. We propose, nevertheless, to pay them a complimentary visit, occasionally, and hope, finally, to take a short trip with them to the *island of human projection*, just to take a view of the three stately pillars of mental structure, dedidicated to *analytic*, *synthetic*, and *arbitrary* methods.

CHAPTER IV.

The structure of reasoning demonstrated.

PRECEDING the middle term, as forming the subject of the major proposition, in the first syllogism, will be observed the words THOSE WHO; before that of the second syllogism THAT WHICH; preceding the third, the article THE; and, at the beginning of the fourth, the word THINGS. Now, these words form no part of the major, middle, or minor terms. Let us then enquire into the particular use of these and similar auxiliaries, and endeavour to make the analysis more perfect.

If the middle term represent the idea of a person or thing, in the smallest degree general, *i. e.* if the word might be enlarged, so as to comprehend more than one individual *person* or *thing*, it must, as the subject of the major proposition, be preceded by the sign *all* or *every*, because it is chosen to prove some attribute which is common to all the persons or things in that clafs of beings; and, in this number, the *minor term* must be comprehended, either as one individual, or collection of individuals, of an

indefinite number, or, as a *species* comprehended under a *genus*; for, without this, there can be no reasoning. For example: if the middle term be *man*, it must, as the subject of the major proposition, be enlarged to *all men*, or *every man*, or the whole clafs must be held in a state of repugnance by the particle *no*, *none*, or *not*. Thus, if we prove that Alexander was disappointed, by the middle term *man*, we choose this middle term, because disappointment is common to us all: and the syllogism will run thus:

ALL *men* are disappointed;
Alexander was a *man*;
Therefore, Alexander was disappointed.

Now, here the common fate of mankind is first attributed to all men, of which number Alexander was one, and of course must have been subject to the same fate. But, if we were to prove something of Alexander which is common only to a few, we must choose, as a middle term, a word which comprehends only a few persons, to which an attribute is common, and of which clafs Alexander was *one*. This we may do by the middle term *conqueror*: as,

EVERY *conqueror* is a fcourge to mankind;
Alexander was a *conqueror*;
Therefore, Alexander was a fcourge to mankind.

Now, though the middle term *conqueror* extends to but few, it must, as the subject of the major proposition, be enlarged to every conqueror, or we could not fairly apply it to Alexander, lest he should have been one of those to whom it did not extend; and if it did not apply to more than Alexander, we should assert at once that *Alexander was the scourge of mankind.*

This, then, is the difference between reasoning and assertion; and hence it is clear that no word, which is not in some degree general, *i.e.* that does not comprehend two or more persons or things of the same kind or sort, can ever possibly form the middle term of a syllogism.

Sometimes, indeed, the universality of the middle term is implied, as in the third syllogism, where the words, *the aged and poor*, signifying *all the aged and poor*, comprehend the minor term, *some of the most profligate.*

Very often it will be found, that the middle term consists of a subject and attribute, or, in other words, contains *genus* and *differentia*; but this only restrains its generality, for it must still comprehend more than one person or thing: as,

EVERY *king of the Stuart family* was **unfortunate**;
Charles the first was *a king of the Stuart family*;
Therefore, Charles the first was **unfortunate**.

Now, the *genus* king extends to a great number of persons, but the special difference, *of the Stuart family*, restrains it to four only, of England; and if there had been no other king of that family but Charles the first, there could have been no reasoning, for we should only have asserted, that *king Charles the first, of the Stuart family, was unfortunate*. Again:

NO *literary production* is **perfect**;
This treatise is *a literary production*;
Therefore, this treatise is not **perfect**.

Here, the middle term, *literary production*, as the subject of the major proposition, is preceded by the particle *no*, to signify, that *not one* of the whole clafs, to which perfection is about to be affirmed repugnant, is excepted. And this is neceſsary, that the minor term might, with certainty, be comprehended; for, if any one or more *literary productions* were excepted, the minor term, *this treatise*, might be of that number, and the reasoning would be consequently uncertain. And, if the middle term, *literary production*, were not general, *i. e.* did not extend

to more than one individual thing, we could not deduce the minor term, *this treatise*, from it, or consider it as comprehended under it; but must content ourselves with aſserting, that *the literary production is not perfect*.

Thus, then, we have accounted for the auxiliaries *all*, *every*, *no*, *none*, and *nothing*; but most usually the middle term signifies some attribute, *referable* to a *person* or a *thing*, which cannot be generalized, or signify any thing of itself. For example: the middle term of the first syllogism is, *know that exceſses will cause disease*. Now, it must be some person who knows this, since the whole aſsociation is the attribute of some being endowed with the faculty of reflection. And we have observed before, that there can be no reasoning, unleſs the middle term be, in some degree, general.

Whenever, then, the middle term is a meer attribute, it cannot be enlarged of itself, and must be preceded by the general indefinite terms, *whosoever*, *whatsoever*, *he who*, *those who*, *that which*, *those which*, or the like; signifying *all those persons who*, or, *all those things which*; that is to say, in the major proposition, *all those persons* to whom, or *all those things* to which the *attribute*,

forming the middle term, is applicable; the *major* term is also *applicable*, or is *repugnant*: as,

THAT WHICH, or, EVERY THING WHICH is *prudent*, is **commendable**;

What is this, but admitting, as an hypothesis, an aſsociation of attributes? What is this, but saying, to whomsoever, or whatever, *prudence* may be ascribed, *commendation* may be ascribed also? Now, if *prudence* be applicable to *an indefinite number of things*, of which *moderation* is found to be *one*, the aſsociate of *prudence*, namely, *commendation*, must be applicable to this one thing also, when singled out from the indefinite number: hence we conclude, that,

Therefore, moderation is **commendable.**

If we ask the question, why? The answer is, [because it is one of those things to which *prudence* is applicable; and we have previously admitted, that, wherever prudence is, there commendation may be also aſcribed.] Or, stating the example in order:

THAT WHICH is *prudent* is **commendable**;
Moderation is *prudent*;
Therefore, moderation is **commendable.**

As it is of the greatest importance to our further progreſs, that these distinctions should be clearly understood, let us apply our remarks also to the

fourth syllogism, where there is a repugnance of attributes. But, first, let me entreat the reader, not to forget that, in this figure, which is sufficient for every purpose, the middle term must be the *subject of the major proposition, and the predicate of the minor.* As the *predicate* of the *minor proposition,* then, *the middle term shews itself in its proper character, i.e.* without enlargement or diminution.

What then is the predicate of the minor proposition, in the fourth syllogism? *Offensive to delicacy.* But this is an attribute referable to some person or thing, how then shall we so enlarge it, that it might be applied to every one of the clafs of beings in which the minor term is comprehended? The minor term, *some words,* is in the clafs of *things,* not *persons.* We will, therefore, let the attribute, which forms the middle term, be preceded by the general term *things,* and the major proposition will be formed thus:

THINGS *offensive to delicacy* should not be used.

Is not this admitting a repugnance of attributes? Is not this the same as saying, that to no one thing, or collection of things, to which the attribute, forming the middle term, is applicable, should the propriety of use be ascribed? Now the

minor term, *some words, is* one collection of things, to which the middle term, *offensive to delicacy*, is applicable, and, of course, the propriety of use *should not be ascribed to some words*. See the example stated in order, page 81.

Let us briefly recapitulate.——Every middle term, or reason, must either represent a person or persons, a thing or things, an attribute or attributes. If the middle term signify a person or a thing, something is affirmed, hypothetically, in the major proposition, to be agreeable with, or repugnant to that whole clafs of persons or things; and in this clafs the minor term must be comprehended; which it is the bufinefs of the minor proposition to affirm: in the conclusion, is ascribed, to the minor term, singly, the same attribute of agreement or repugnance, which was ascribed to it, in the major proposition, together with the whole clafs of beings to which it belongs.

If the middle term be an attribute, it is affirmed, in the major proposition, as an hypothesis, that to whatever person or thing the attribute, forming the middle term, may be ascribed, the agreement or repugnance of the major term may be ascribed also. In the minor proposition, the

attribute, forming the middle term, is ascribed to the minor term, and, in the conclusion, the agreement or repugnance, which has been previously admitted between the *middle* and *major* terms, must be also admitted between the *minor* and *major* terms. Or, in other words, if we admit that two things are *inseparably united*, to that in which we find the *one*, we may fairly ascribe the *other*: if we admit, that two things *never exist together*, where we find the *one*, there we must admit that the *other is not*.

Thus have I endeavoured to explain the use of these auxiliary terms, and to render the syllogistic analysis complete; and, in fact, this comprehends the whole theory of reasoning, for every proposition must be affirmative or negative, and every middle term must represent something *personal*, *impersonal*, or be an *attribute*.

These auxiliary terms, such as *all*, *every*, *no*, *none*, and *nothing*, preceding the middle term, as the subject of the major proposition, when it represents a person or a thing; and *whosoever*, *whatsoever*, *those who*, *that which*, and all other general terms, which precede the middle term, as the subject of the major proposition, when it signifies an attribute, I call *universal signs*, and they will appear in small capitals.

The first principles of reasoning being thus explained, let us endeavour to render them familiar, and shew that the analysis is perfect.

Reasoning, then, is nothing more than a compendious mode of verbal addition and subtraction. Let us proceed instantly to the proof:

EVERY *man* must DIE;

Here the first step is addition, for I have added the attribute of *death* to *every man*. On what evidence have I added this attribute? I admit this on the ground of common experience. Now for subtraction:

Peter is a *man;*

What have I done here? I have viewed my grofs sum above, namely, *every man*, and finding the individual *Peter* contained in it, I have subtracted Peter, placed him underneath, and have declared him to be one of that number. Now for another step of addition:

Therefore, Peter must DIE.

What have I done in this last procefs? I have placed Peter again below, and have added to the individual *Peter*, the same attribute, namely, *death*, which I had joined in the first instance to my grofs sum, *i. e. every man*, on the ground

of common experience, and the work is complete. The example may now be exhibited thus:

From,	EVERY *man* must die;	Addition.
Take,	Peter is a *man*;	Subtraction.
Answer,	Therefore, Peter must die.	Addition.

Again:

THINGS *offensive to delicacy* should not be used;

On what ground do I add a repugnance of use to things offensive to delicacy? I take it for granted, as an established maxim. Now, let me view my grofs sum above, *i. e.* the middle term, which is the subject of the preceding proposition. Comprehended then *in things offensive to delicacy*, I find the minor term, *some words*, which I subtract, and affirm it to be one of the grofs number underneath, thus:

Some words are *offensive to delicacy*;

In the third place, I repeat my minor term, and join thereto the attribute of repugnance, which I have admitted to belong to my grofs sum, in the major proposition, thus:

Therefore, some words should not be used.

Or, throwing the example together:

From, { THINGS *offensive to delicacy* should not be USED; } Addition.

Take, < Some words are *offensive to delicacy*; > Subtraction.

Answer, { Therefore, some words should not be USED. } Addition.

This needs no comment; for, whether I unite or repudiate, *i. e.* add an attribute of agreement or repugnance, I still call it addition. And these two examples are amply sufficient, for every proposition must be affirmative or negative. Now I shall endeavour to prove, by examples taken from our best authors, that every form of familiar reasoning, however compounded, elliptical, complicated, or irregular, may be reduced to this standard. What occasion then was there for the invention of *moods* and *figures*, to regulate the quantity and quality of the three propositions? Any one who has studied the moods of syllogism, and clearly comprehends the ideas intended to be conveyed in the preceding pages, must acknowledge, that the doctrine of *mood* and *figure* originated in an ignorance of the true principles of reasoning, *i. e.* in an ignorance of the proper analysis. And I trust it will appear, as we proceed, that those who have condemned syllogism *in toto*, were entirely unacquainted with the use to which it might be applied.

According to the preceding observations, if the first connection, which I admit on intuition, previous demonstration, or testimony, *i. e.* if my first proceſs, in addition, be true, and my middle term, as the subject of the major proposition, contain my minor term, the reasoning must be good; for, when again, in the conclusion, I add the attribute to the individual, or number of individuals subtracted, it is on the ground of the first connection, or repugnance, which has been previously admitted; for nothing can be clearer than, if an attribute of agreement, or repugnance, be added to every one of a regiment of soldiers, that the same attribute may be added to an individual, when taken out of the ranks. This is fairly reducing reasoning to *plus* and *minus*. If then all reasoning be good, where the hypothesis is true, and when the middle term, as the subject of the major proposition, really contains the minor term, no reasoning can be false, but from a deficiency in one or both of these two points. This I shall have occasion to demonstrate as we proceed.

But, before we dismiſs this topic, let us just observe, of how much importance is the doctrine of *genus* and *differentia*, since every deduction depends entirely on our accuracy in this point.

It is the *plus* and *minus* of reasoning; for the connection or repugnance between the *middle term* and the *major term* is first admitted, on the ground of intuition, experience, or testimony, and the chief business of reasoning depends on our skill in discovering *whether the middle term, as the subject of the major proposition, be a genus containing the minor term as a species, or be the sign of a number of persons or things, possessing individual attributes, of which the minor term is an integral part*; since the smallest error, in this point, as in the mathematics, will produce a false conclusion.

Let it be observed, however, that, in writing and conversation, we generally abridge the syllogism, *i. e.* use no more than the minor proposition and the conclusion: as,

1.

Wise men *know that excesses will cause disease*;
Therefore, they [*i. e.* wise men] should be **moderate**.

2.

To conceal involuntary emotions of anger is *prudent*;
Therefore, [or for this reason] it [*i. e.* to conceal involuntary emotions of anger] is not **blamable**.

3.

Some of the most profligate are *aged and poor*;
Therefore, [or consequently] they [*i. e.* some of the most profligate] are **proper objects of our charity.**

4.

Some words are *offensive to delicacy*;
And, therefore, [or of course] they [*i. e.* some words] should not be **used.**

It will be observed, by the different type in which they appear, that, even in these abridgments, all the remote matter of the syllogism is completely expreſsed, *i. e.* the major, middle, and minor terms. In some few instances, the minor proposition is omitted, and the major and the conclusion are retained: as,

All *metals* are **fusible**;
Therefore, iron is **fusible.**

Here the minor proposition [iron is a *metal*] is understood, but still the remote matter of the syllogism is distinctly seen. The syllogism, when defective, as in the preceding instances, is called an *enthymeme*. The word is Greek, and signifies, that something, not expreſsed, is to be understood.

CHAPTER V.

The use of syllogism demonstrated.

LET us now view, in the order of our most familiar conversation, the four examples of syllogistical reasoning, instanced in page 81.

To reduce a syllogism into the familiar form of reasoning, we omit the illative *therefore*, give the conclusion the first place, and join thereto the middle term, (usually preceded by a repetition of the minor term, or some relative word as a substitute,) by the conjunction *for*, *as*, or *because*.—Let us now take, successively, the conclusions of the four preceding syllogisms, and join to them their respective middle terms, when the mystery of syllogistical reasoning will begin to unfold itself.

1.

Wise men should be **moderate**;
Because they *know that excesses will cause disease.*

2.

To conceal involuntary emotions of anger is not **blamable**;
Because it is *prudent.*

3.

Some of the most profligate are **proper objects of our charity**;
Because they are *aged and poor*.

4.

Some words should not be **used**;
Because they are *offensive to delicacy*.

This form of familiar reasoning, whether the sign of reasoning be *for*, *as*, or *because*, I call the *causal enthymeme*.

In all the preceding and subsequent examples of familiar reasoning, as in the corresponding syllogisms, the major term will appear in *black*, the middle term in *italic*, and the minor term, copulas, and signs of reasoning, in *roman letter*.

Thus it appears, that, in our most familiar conversation, we are continually forming syllogisms, according to the primitive meaning of the word, and, though the language is not ranged in the order prescribed by Aristotle, we never reason without expreſsing the remote matter of a syllogism, *i. e.* the *major*, *middle*, and *minor* terms.

As we take the conclusion first, and join thereto the middle term, preceded by a repetition of the minor term, or some substitute, to reduce a syllogism into the common form of reasoning, so to transpose an example of the *causal enthymeme* into a syllogism, we must take the predicate of the reasoning proposition as a middle term, and enlarge it, or restrain it, by a negative particle, so as to comprehend every one of the rank of beings to which the minor term belongs: join thereto, by a proper copula, the predicate of the aſserting proposition, and thus will be formed the major proposition: then take the subject of the aſserting proposition, and join thereto, by a proper copula, the middle term, and this forms the minor proposition: finally, repeat the aſserting proposition, preceded by the illative *therefore*, and this will be the proper conclusion: as,

Aſserting Proposition. } Perseverance is **useful**;
Reasoning Proposition. } Because it *enables us to overcome difficulties.*

Now, according to the preceding obſervations, let us discover the predicate of the reasoning proposition. This we find to be, *enables us to overcome difficulties.* But this is a meer attribute, and cannot, of itself, comprehend the minor

term, *perseverance*; let it then, according to the rule, page 88, be preceded by some word or words, sufficiently general to comprehend every being in the clafs to which the minor term belongs. We will, therefore, adopt the universal sign, *that which*; and then the middle term, preceded by this universal sign, will form the subject of the major proposition: thus,

THAT WHICH *enables us to overcome difficulties.*—

To this subject, let *useful*, the predicate of the afserting proposition, be joined by a proper copula, and this will form the major proposition: thus,

THAT WHICH *enables us to overcome difficulties* is **useful**;

Take then, *perseverance*, the subject of the asserting proposition, and join thereto the middle term, without the *universal sign*, and this will form the minor proposition: thus,

Perseverance *enables us to overcome difficulties*;

Now, let us repeat the afserting proposition, preceded by the word *therefore*: as,

Therefore, perseverance is **useful**;

And the work is complete, for these three propositions form a complete syllogism: as,

THAT WHICH *enables us to overcome difficulties* is **useful**;
Perseverance *enables us to overcome difficulties*;
Therefore, perseverance is **useful.**

Where then does reasoning begin? It begins by admitting an agreement or repugnance between the middle and major terms, as an hypothesis. In the preceding example, having distinguished the three terms, and having found the middle term to be an impersonal attribute, we ascribed it to the universal sign *that which*, meaning *all things or qualities which*—we next admitted, as an hypothesis, the agreement between it and the major term *useful.* Here, then, the reasoning began. After this, we deducted the minor term *perseverance*, as one of the number of things which enables us to overcome difficulties: we then stated the minor term, in the third place, and added thereto the attribute *useful*, which had been admitted to belong to it, among an indefinite number of other things, in the major proposition: and here the business of reasoning ended: as,

From,	THAT WHICH *enables us to overcome difficulties* is **commendable**;	Addition.
Take,	Perseverance *enables us to overcome difficulties*;	Subtraction.
Answer,	Therefore, perseverance is **commendable.**	Addition.

Again:

"The rich and the great **afford a general topic of** "**severe animadversion,** because they *employ the* "*time, and use the means, which their situation* "*gives them, in the enjoyment of the gifts of for-*"*tune and of art.*"

Valpy, Note on Assize Sermon, page 6.

What is the hypothesis here which the Doctor takes for granted? This we cannot answer, before we have distinguished the three terms, or remote matter, of the syllogism. Let us see, then, the middle term, printed in italic, is a personal attribute, and, as it must be ascribed to some general sign, which comprehends the minor term, *the rich and the great*, let it be preceded by the universal sign *those who*, meaning, *all those persons who*, and then, proceeding according to our rule, the operation will begin thus:

THOSE WHO *employ the time, and use the means, which their situation gives them, in the enjoyment of the gifts of fortune and of art,* **afford a general topic of severe animadversion.**

So then, this is the hypothesis on which the Doctor grounds his conclusion, that is to say, admit this, and the conclusion must follow.

Now, if the minor term, *the rich and the great*, be found among the number of those who so *employ their time and use their means*, the attribute, *afford a general topic of severe animadversion*, which has been ascribed to it with an indefinite number of persons, in the major proposition, must be applicable to it when distinguished and singled out from the collection: as,

From, { THOSE WHO *employ the time, and use the means, which their situation gives them, in the enjoyment of the gifts of fortune and of art*, **afford a general topic of severe animadversion**; } Addition.

Take, { The rich and the great *employ the time, and use the means their situation gives them, in the enjoyment of the gifts of fortune and of art*; } Subtraction.

Answer { Therefore, the rich and the great **afford a general topic of severe animadversion.** } Addit.

Again:

"In predicting the same event, the language of "ancient prophecy was magnificent, but "**seemingly contradictory**; for it *foretold a meſsiah*, "*who was to be at once a sufferer and a con-*"*queror.*"

Blair's Sermons, vol. i. *page* 126.

What is the hypothesis here? It is taken for granted, that whatever foretells a meſsiah, who

was to be at once a sufferer and a conqueror, is, seemingly, contradictory. Now, to the magnificent language of ancient prophecy, in predicting the same event, may be ascribed the attribute forming the middle term: and with it must also be found its associate, the attribute of *seeming contradiction*. For, in fact, both the middle and the major terms, in this example, are abstract attributes, and we admit, in the major proposition, that they are associates, the one is ascribed to the *magnificent language of ancient prophecy*, and the other must, of course, be found there also: or,

THAT WHICH *foretells a messiah, who is to be at once a sufferer and a conqueror*, is **seemingly contradictory**;

The magnificent language of ancient prophecy, in predicting the same event, *foretold a messiah who was to be at once a sufferer and a conqueror*;

Therefore, the magnificent language of ancient prophecy, &c. was **seemingly contradictory**.

But those who have so unmercifully condemned the use of syllogism, may say, it is very true, we acknowledge now that we cannot discover where reasoning begins, nor view distinctly the points on which its truth depends, however forcibly it may strike us, without being able to distinguish

what are called the *major*, *middle*, and *minor* terms; but pray, what occasion is there for three propositions placed in such exact order? I answer, that the form is just as neceſsary as the order of ranging the figures in addition and subtraction. Have a little patience, gentlemen, and I will give you sufficient proof. It has been before observed, that, if there be any error in the addition or subtraction, it is fatal to the truth of the reasoning. Now, in the following sentence of Mr. Addison, No. 412, of the Spectator, there is a mathematical error which, in the present arrangement, may not be discovered, but, the moment we examine it by our test, the error will be detected.

"Every thing that is new or uncommon raiſes a "pleaſure in the imagination, because it *fills the* "*ſoul with an agreeable ſurprise, gratifies its* "*curiosity, and gives it an idea of which it was* "*not before poſſeſsed.*"

Here the middle term, as is most commonly the case, is an attribute; and as the minor term is impersonal, let it be preceded by the universal sign *that which*, and then, proceeding according to our rules, the major proposition will be formed thus:

THAT WHICH *fills the soul with an agreeable surprise, gratifies its curiosity, and gives it an idea of which it was not before poſseſsed,* **raises a pleasure in the imagination.**

Now, this proceſs of addition, that is to say, this hypothesis, might be fairly admitted. The next thing is, to subtract the minor term, which is *every thing new or uncommon*; but is *every thing new or uncommon* comprehended in *that which fills the soul with an agreeable surprise?* Surely it is not. —It may be a thing new or uncommon to be on board a ship on fire at sea, or to see a respected friend broken on the wheel, but these can never be considered as comprehended in the number of things which fill the soul with an agreeable surprise, &c. Is not this subtracting *plus* from *minus*, taking a greater sum from a leſser? It is a mathematical anomaly, and needs no comment.

Would Mr. Locke and so many metaphysical writers, have condemned the use of syllogism, had they been aware of this? Surely it is necessary that we should know where our reasoning begins; and can we know that the first step is an admiſsion of an agreement or repugnance between a whole claſs of beings and the major term, as an hypothesis, without first being able to distinguish the parts of the syllogism? It is also

equally neceſsary that, when we have discovered the respective parts, we should know how to place them in an order, the most convenient for making the deduction and performing the consequent addition. And is there any other order that so perfectly corresponds with mathematical simplicity? I must confeſs that, after some labour, I cannot discover any. This system renders all the complicated divisions of propositions unneceſsary. We have, indeed, preserved the terms *universal* and *particular*, but they are used to signify very different ideas from those they have hitherto represented; nor are these distinctions, even now, of any great importance, for the division of propositions into *congenial* and *repugnant*, or what we have called *affirmative* and *negative*, is all that is neceſsary to our purpose.

Is not all that cavil about *singular*, *indefinite*, *universal*, and *particular* propositions done away? We have nothing to do, according to this system, but to regard mathematical accuracy; to be careful that we take nothing for granted which is disputable; that we do not deduct *plus* from *minus*, and that we unite or repudiate the same attribute with respect to *minus*, in the conclusion,

as we have united or repudiated with respect to *plus*, in the major proposition.

But, let us again remark, of how much importance is the study of *genus* and *differentia*: without a knowledge of this doctrine, we shall not be able to subtract the minor from the middle term, for, though the minor term is, sometimes, *one* of *a number of individuals* comprehended in the middle term, it is very often a *species* included in the *genus* which the middle term represents. Will the father of a family, then, suffer his children to be educated at a seminary, where so important a branch of learning, as that which comprises the very *first principles of ratiocination*, is neglected? But now, after recommending the reader to compare the four syllogisms, in the last chapter, with the four *causal enthymemes* at the beginning of this, to render transposition familiar, let us make a few remarks, before we conclude this chapter.

From our attempt to demonstrate the first principles of reasoning, and the analogy between the syllogistical and one of the most useful forms of familiar reasoning, it appears, that all reasoning must begin by stating, or supposing an hypothesis; and it may be demanded, why we so seldom expreſs the hypothesis in common language?

I answer, that it is elegantly omitted, and is most commonly unneceſsary; and, that when sometimes we *do* state the hypothesis, few are sufficiently skilled in analysis to discover the proposition in which it is expreſsed, though its force may be amply satisfactory. We shall, however, find, by attending to familiar conversation, that, whenever a good reason is misunderstood, the speaker generally gives his hypothesis, though he be, perhaps, unconscious of it. Suppose it were aſserted that,

Clericus has **taken the oaths of ſupremacy and allegiance**;
Because he is *an English bishop*.

The hearer may poſsibly be unacquainted with the hypothesis, and may ask, *why he should have taken the oaths of supremacy and allegiance because he is an English bishop?* The answer would be, that

ALL *English bishops* must **take the oaths of ſupremacy and allegiance**;

And this is the proper hypothesis, *i. e.* the major proposition. Or, the answer might be,

There is NO *English bishop who* has NOT **taken the oaths of ſupremacy and allegiance**;

Which conveys the same meaning. Or, the hypothesis might be stated thus:

There are NO *English bishops* BUT must have **taken the oaths of ſupremacy and allegiance.**

Here *but*,* according to Mr. Horne Tooke, ſignifies *be out*, or *except*; ſo that, if we expreſs the hypothesis fully, we may say,

There is NO *English bishop*, BE OUT, OR EXCEPT ALL THOSE MEN WHO have **taken the oaths of ſupremacy and allegiance.**

Thus it appears, that, in whatever form of language the reply be expreſsed, it is still an hypothesis, wherein the whole claſs of beings, to which the minor term *Clericus* belongs, is either restrained in a state of repugnance, without a single exception, or the whole claſs is represented, in order to be declared individually subject to some attribute.

In short, whenever a speaker has given a reason, and conceives that he is not sufficiently understood, he has no other resource but to fly immediately to his hypothesis. A little attention to common conversation will give ample satisfaction on this head, and afford much amusement to one who can be interested in this study.

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* Vide Horne Tooke's Diversions of Purley.

Those who will accustom themselves to this kind of exercise, will soon get into the habit of detecting false, or defective reasoning, and will presently discover, that many, who are masters of captivating declamation, and charm the ear with flowery language, are very indifferent reasoners.

CHAPTER VI.

Of the regular enthymeme.

HAVING endeavoured to demonstrate the principles of reasoning, and to shew the use of syllogisms, I shall now proceed to point out the various forms of familiar reasoning, and to enquire what analogy they bear to the syllogistic standard.

The first form of familiar reasoning I have denominated the *causal enthymeme*. This which we are about to notice, I call the *regular enthymeme*. It consists, as we observed in pages 97 and 98, of the minor proposition and the conclusion. It is very common, both in conversation and in writing: as,

" God hath *forgiven me many sins of malice*;
" And therefore he will **pity my infirmities.**"

Taylor's Holy Living.

Here we perceive the *major*, *middle*, and *minor* terms; but, that we may view distinctly the hypothesis, it is neceſsary to supply the major proposition. This may be done by taking the middle term, which is an attribute, and preposing an universal sign, sufficiently general to comprehend the minor term *God*: join thereto the major term, and this will form the defective member: as,

A GRACIOUS BEING WHO hath *forgiven me many sins of malice* will **pity my infirmities.**

Let this proposition precede the quotation, and the syllogism will be perfect.

Explanatory matter is often introduced between the parts of reasoning, as in the following regular enthymeme, but the eſsential members may, nevertheleſs, be easily discovered.

"The term taste, like all other fugitive terms, "is not *extremely accurate*; the thing which "we understand by it is far from a simple and "determinate idea in the mind of most men, "and it is therefore **liable to uncertainty and confusion.**"

Burke on the Sublime and Beautiful, page 4.

Now the auxiliary matter may be omitted, and the parts of reasoning may be brought together, and disposed in the stoic order, for examination, thus:

THAT WHICH is not *extremely accurate* is **liable to uncertainty and confusion**;
The term taste is not *extremely accurate*;
Therefore, the term taste is **liable to uncertainty and confusion.**

There is another form of reasoning, in common use, which I call the *obvious enthymeme*: as

Since [or seeing that] I have *experienced calamity in the snares of pleasure*;
I should **abandon its pursuit.**

Here also the middle term is an attribute; and, in the major proposition, it may be preceded by the universal sign *he who*, or *those who*, signifying *that person who*, *those persons who*, or *whosoever*: as,

THOSE WHO have *experienced calamity in the snares of pleasure* should **abandon its pursuit**;
I have *experienced calamity in the snares of pleasure*;
Therefore, I should **abandon its pursuit.**

See another example of the *obvious enthymeme* in page 75 of this treatise.

Most of those sentences, wherein a conclusion is deduced from an assumed hypothesis, preceded by the particle *if*, *were*, or the like, which logicians have hitherto denominated *hypothetical propositions*, and many of those called *causal* are familiar syllogisms, *i. e.* conclusions made by reasoning. Let us, for example, apply the preceding rules to the following sentence:

"Rehoboam was **unhappy**;
"Because he *followed evil counsel.*"

Example of a causal proposition given by Dr. Watts in his Logic, page 167.

Mr. William Duncan gives the same example in treating of conditional propositions, in his "Elements of Logic," page 173. Now this is clearly an instance of what I call the *causal enthymeme*, the most familiar form of reasoning among mankind: as,

WHOSOEVER *follows evil counsel* will be **unhappy**;
Rehoboam *followed evil counsel*;
Therefore, Rehoboam was **unhappy**.

In the same page, Mr. Duncan states the following sentence as a *conditional proposition*:

"If a stone is *exposed to the rays of the sun*;
"It will **contract some degree of heat.**"

Here are two propositions, and a *major*, a *middle*, and a *minor* term: let us state the con-

clusion, then, and enquire whether the affirmation be not made in consequence of a reason.

It [*i. e.* a stone] will **contract some degree of heat**: Why?

Because it is *exposed to the rays of the sun.*

So this, then, is the reason assigned, why *a stone will contract some degree of heat*; that is to say, on condition that it be exposed to the rays of the sun. Or the answer may be,

Because ALL SUBSTANCES WHICH are *exposed to the rays of the sun* will **contract some degree of heat**, and a stone is A SUBSTANCE.

Now this answer completely contains the hypothesis and deduction, on which the affirmation is grounded, though they are not ranged in the stoic order. Wherein, then, does this differ from the other forms of reasoning? The difference is simply this; in the other forms of reasoning, what I have called the *first step in addition*, is the hypothesis; in this form of reasoning, the second process, or the *subtraction*, forms the hypothesis. To demonstrate this, let us admit the hypothesis, that is to say, the *subtraction*, in the quotation from Mr. Duncan, and then we shall find that the example may be regularly exhibited in the stoic order. The middle term, *exposed to*

the rays of the sun, is an attribute, and the minor term is, *a stone*. Let then the middle term, as the subject of the major proposition, be preceded by the *genus* substance; and then, proceeding according to our rules, the major proposition will be formed thus:

A SUBSTANCE WHICH is *exposed to the rays of the sun* will **contract some degree of heat**;

Now, as a stone is a *species* comprehended in the *genus* substance, we may subtract it as *minus* from *plus*, and say, in the minor proposition:

A stone is *exposed to the rays of the sun*;

Now let us place the minor term, *stone*, at the beginning of the next line, preceded by the illative *therefore*, and join thereto the attribute admitted in the major proposition, when the conclusion will be formed thus:

Therefore, a stone will **contract some degree of heat.**

Or, exhibiting the example together:

From,	A SUBSTANCE WHICH is *exposed to the rays of the sun* will **contract some degree of heat**;	Addition.
Take,	A stone is *exposed to the rays of the sun*;	Subtraction.
Answer,	Therefore, a stone will **contract some degree of heat.**	Addition.

It may here be worthy of remark, that, if the first connexion or repugnance, which is admitted, in the other forms of reasoning, be false, the minor proposition may, nevertheleſs, be a fair deduction, and the conclusion will be false, in consequence of the fallacy admitted in the major proposition. For example; a modern writer says:

"A certain opinion is **falſe**;
"Because it *leads to a dangerous consequence.*"

Since the middle term here is an attribute, let it be preceded by the universal sign, *whatsoever*: thus,

WHATSOEVEE *leads to a dangerous consequence* is **falſe**;

Now, an opinion may be one of those things which *leads to a dangerous consequence*, and yet be what is called a *truism*; and when we conclude, that,

Therefore, the said opinion is **falſe**;

The error is owing to the inaccuracy of the hypothesis, taken for granted in the major proposition, for if we admit, that to whatever the attribute, forming the middle term, may be ascribed, *fallacy* may be ascribed also, we cannot reasonably object to the application of *fallacy* to *an*

opinion to which the attribute, forming the middle term, has been previously ascribed; or, in other words, the subtraction may be just, when the addition is inaccurate. But, in this form of reasoning, the connexion or repugnance between the *genus* and the *major term*, in the major proposition, and between the *species* and the *major term*, in the conclusion, may be true and indisputable, *if we admit the hypothesis in the minor proposition*, though it be ever so absurd or impossible: or, if we admit the subtraction, the addition cannot be reasonably opposed: as,

If * stones were *gold*;
They would be **fusible**.

Now, let us assume, to precede the middle term *gold*, the universal sign *whatsoever*: as,

WHATSOEVER is *gold* is **fusible**;
Stones are *gold*;
Therefore, stones are **fusible**.

Or,

WHATSOEVER is *gold* is **fusible**;
Admit [or grant] that stones are *gold*;
And then it will follow that stones are **fusible**.

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* Mr. Horne Tooke, in his Diversions of Purley, has fairly proved that *if* is the imperative of a verb, signifying to *grant* or to *give*.

This form of ratiocination I call the *hypothetical enthymeme*; it is the most common, and certainly one of the most useful forms of reasoning in the compaſs of language. It evidently consists of the minor proposition and conclusion, and how it could have been ranked as an *hypothetical proposition*, by so many intelligent writers, is really astonishing.

To discover the difference between what was meant by a *conditional proposition* and the *hypothetical enthymeme*, it is neceſsary to observe whether or not the affirmation expreſsed, in one proposition, be inferred from a *reason predicated* in the other: as

If I am **condemned to death,**
I will **submit with fortitude.**

Now, that *I should submit with fortitude*, is not an obvious consequence of my condemnation, but only a declaration of my resolution, on the preceding condition, grounded, perhaps, on some *latent reason*. This, therefore, must be the *conditional proposition*.* But when I say,

If I am *condemned to death,*
I must **suffer.**

* See another instance, page 58.

The two propositions form an *hypothetical enthymeme*. For, in the first example, if I ask the question, why *I will submit with fortitude*, the answer,

Because I am *condemned to death*;

Is nugatory. But, in the second example, if I ask the question, why *I must suffer*, the answer,

Because I am *condemned to death*;

Is a good reason. This, therefore, I call an *hypothetical enthymeme*. In short, it may be considered as a general rule that, whenever an affirmation is made, and no word or words are expreſsed which answer to the question, why? or in consequence of what? the proposition may be considered as an aſsertion without proof; but if any word or words be expreſsed, which *directly* or *indirectly* answer to the question, the example is an act of reasoning, though it will very often be found defective.

Every form of simple familiar reasoning then, I rank under one or the other of the four preceding heads; or, to be more explicit, I call that form wherein the sign of reasoning is *because*, *for*, or *as*, the *causal enthymeme*; and that where-

in the sign of reasoning is *therefore*, *consequently*, *for that reason*, *hence*, or *so*, the *regular enthymeme*; that form of reasoning preceded by *since*, or *seeing that*, I call the *obvious enthymeme*; and that preceded by *if*, or *were*, the *hypothetical enthymeme*.

Before we conclude this chapter, it may not be improper to observe, that there is, as we have sufficiently proved, an assumed hypothesis in every form of reasoning, *i. e.* there is a condition granted, or something admitted, which I have called the first step of addition in one form of reasoning, and subtraction in the other. Now it may be easy for a person nowise skilled in syllogism to discover the condition or *datum* in the *hypothetical enthymeme*; but who, in the other form of reasoning, unacquainted with the parts of a syllogism, can point out the hypothesis or *datum* on which the conclusion depends? Can any person, unacquainted with *genus* and *differentia*, and the parts of a syllogism, answer that we must implicitly or explicitly admit of an agreement or repugnance between a general term, and some attribute or attributes, and point out where that *datum* is? Suppose I affirm, that *the little animal, now singing in its cage, where I am writing, is a bird, because it is covered with*

feathers. On what hypothesis do I make the asertion? I fear that too many would be puzzled to answer this question. We must find the major proposition, before a reply can be made. Let us consider, then, what general term, what *genus* we shall make choice of, to precede the attribute, forming the middle term, which will comprehend the minor term, *bird*. Let us adopt the word *animal*, and then the major proposition will run thus:

An animal *covered with feathers* is a bird.

Here, then, is the hypothesis; on this *datum* I can prove, that *the little being in its cage is a bird*. But why was that attribute made the sign of its distinction from other animals? Might it not have been called a bird because it *poſseſses the capacity to fly*, as fishes obtain their general distinction by living in the water? Doubtleſs the attributes of distinction, by which men have thought proper to claſs things, are, in many instances, arbitrary. The middle term, then, is arbitrary; and, if men should ever choose to claſs things by different attributes, our reasoning must alter accordingly. What then is the ground on which the whole fabrick of reasoning is built? The general and striking effects, which the qualities of the various beings sur-

rounding us, produce on our senses, when we are in a *paſsive* state, and the general attributes which we discover in the *physical*, *metaphysical*, and *moral* regions, by our *active* enquiries or experiments. How far, then, does reasoning serve us? When the reasoning is *pure*,* it enables us to shew, that a being, or beings, an action, or actions, a paſsion, or paſsions, *do*, or *do not*, belong to a certain nominal claſs, because *it* or *they*, *do* or *do not*, bear a relation, or relations, poſseſs a certain characteristic, or number of characteristics, which distinguishes that whole tribe. And, when the reasoning is *modal*,‡ it enables us to shew, that a being, or beings, an action, or actions, a paſsion, or paſsions, *may*, or *may not*; *should*, or *should not*, *can*, or *cannot*; *could*, or *could not*; *might*, or *might not*; *would*, or *would not*; *must*, or *must not*; *ought*, or *ought not*; *shall*, or *shall not*, be subject to an attribute, or attributes, which nominally distinguishes a whole claſs. As in the first syllogism, page 81, it enables us to shew, that,

Wise men should be of the claſs distinguished by the attribute *moderate*;

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* That is, when the major, and conclusion, are *pure* propositions, see page 55. ‡ Vide page 55.

In the second, we are enabled to shew, that,

> To conceal involuntary emotions of anger, is not in the clafs of actions distinguished by the attribute *blamable*;

In the third, it is demonstrated, that,

> The aged and poor are in that clafs of persons to which our *charity may be extended with propriety*;

And the fourth exhibits a proof, that,

> Some words should not be considered as in the clafs of things to which the propriety of *use* is applicable;

And so with every other example of this kind of reasoning, wheresoever found.

It also enables us to shew, that when we admit any being, or number of beings, *to be*, or *be not*, in any particular predicament, with respect to *time*, *place*, *circumstance*, &c. that *it*, or *they*; *will*, or *will not*, be subject to the same *action*, *paſsion*, *relation*, &c. to which all the beings, in that *identical* predicament, are liable. As in page 116 it is demonstrated, that,

> If a stone be exposed to the rays of the sun, it must, in common with all other substances in the same predicament, contract some degree of heat.

And, finally, reasoning enables us to shew, that when we have admitted that any being, or beings, action, or actions, paſsion, or paſsions, *do*, or *do not*, belong to any particular claſs, we must acknowledge, that *it*, or *they*, *must*, or *must not*, poſseſs the general characteristic, or characteristics, by which that particular claſs is distinguished. As in page 120 we shewed that,

> If stones were gold, we must confeſs that, like all that species of substance, they must be fusible.

Within this narrow compaſs, then, are circumscribed all the mighty powers of human ratiocination!

Est modus in rebus; sunt certi dénique fines,—

By noticing general characteristics, men have divided *beings*, *actions*, and *paſsions* into claſses, but the general attributes of distinction in botany, and other sciences, are frequently changed. Some ranks of beings are claſsed by real and inherent qualities, sufficiently striking to all ranks of men. Others are distinguished according to the arbitrary whim, perhaps, of an individual; and, frequently, so improper a sign is chosen for the *generic* or *specific distinction*, that other things of a different nature shall poſseſs the characteristic sign; hence, things are mistaken one for another. If, indeed, it were poſsible to

clafs the signs of all our *intellectual*, *moral*, *physical*, and *metaphysical ideas* into *genera* and *species*, and that to each genus we could ascribe an exact number of species, and to each species its respective number of individuals, we should approach towards something like mathematical accuracy. But to reject the means which may afford us the utmost poſsible aſsistance, in our present circumstances, because we cannot arrive at perfection, is as ridiculous as to refuse the use of a lamp in a dark intricate road, because we cannot command the bright splendour of the sun.

Now, after entreating the reader to review the enthymeme, pages 123 and 124, and to ask himself candidly, whether he could clearly have distinguished the hypothesis, without some previous knowledge of these modes of distinction, let us proceed to the more immediate object of our present design.

CHAPTER VII.

Of compound familiar reasoning.

AS a large proposition frequently includes one or more inferior propositions, which are *incident* or *subordinate*, so one of the propositions of a familiar enthymeme will often be a complete act of reasoning of itself, and then the two propositions will comprise the remote matter of two syllogisms: as,

If books were **to be burnt** because they may have *received critical condemnation*;
Few would **remain to decorate the libraries of the curious.**

Now, let us admit the hypothesis, and this sentence may be formed into two syllogisms, thus:

WHATSOEVER has *received critical condemnation* is **to be burnt**;
Many books have *received critical condemnation*;
Therefore, many books are **to be burnt**;

Or,

THAT WHICH is *to be burnt because it has received critical condemnation*, cannot **remain to decorate the libraries of the curious**;
Many books are *to be burnt because they have received critical condemnation*;
Therefore, many books cannot **remain to decorate the libraries of the curious**

This is an argument of two conclusions; and if we admit the first conclusion, taken hypothetically, the second conclusion will follow, from a reason which is understood; and the *latent reason*, or *middle term*, may be supplied thus:

If books were **to be burnt** because they may have *received critical condemnation*;

Few would **remain to decorate the libraries of the curious**, because few have *escaped critical condemnation*.

This kind of argument is sometimes assumed, to expose an absurdity, in which it is used with admirable effect: as,

"If we will **disbelieve every thing**, because we "cannot *certainly know all things*; we shall "**do much what as wisely as he, who would not use his** "**legs, but sit still and perish**, because he *had no* "*wings to fly*."

Locke's Introduction to an Essay on the Human Understanding, page 4.

Now, here are four propositions, containing the matter of two simple syllogisms; these, admitting the hypothesis, may be exhibited in the stoic order separately: as,

WHOSOEVER cannot *certainly know all things* will **disbelieve every thing;**
We cannot *certainly know all things;*
Therefore, we will **disbelieve every thing.**

HE WHO *had no wings to fly* would not **use his legs, but sit still and perish;**
A certain person *had no wings to fly;*
Therefore, he would not **use his legs, but sit still and perish.**

Or, taking the sentence together, thus:

WHOSOEVER *disbelieves every thing, because he cannot certainly know all things,* **does much-what as wisely as he who would not use his legs, but sit still and perish, because he had no wings to fly;**
We *disbelieve every thing, because we cannot certainly know all things;*
Therefore, we shall **do much-what as wisely as he who would not use his legs, but sit still and perish, because he had no wings to fly.**

The division of the preceding example into simple syllogisms, can evidently be of no use with respect to the investigation of its truth, since it depends upon an hypothesis, which is assumed, because it is absurd or ridiculous to expose it by a striking simile. I have divided it only for the sake of analysis, *i. e.* to shew that the respective members of reasoning are clearly discoverable.

It will frequently be found, that a medium is stated as an hypothesis, on the ground of which an agreeable, or a disagreeable affirmation is made, whence an opposite conclusion is inferred, from a contrary medium which is understood: as,

If men *neglect improvement in their youth*, **when age renders vapid their taste for juvenile amusements**, they will **have little to make them agreeable to others, or to afford them comfort in their own reflections**; therefore, young men should **assiduously cultivate their understanding.**

In the preceding example, it will be seen, that the subject and the sign of the copula of the second proposition, divide one part of the predicate from the other; this is owing to the variation of what is called the elegant, from the formal style of logic; but the whole may be stated in logical order, and the elliptical member supplied thus:

If men *neglect improvement in their youth*;

They will **have little, when age renders vapid their taste for juvenile amusements, to make them agreeable to others, or to afford them comfort in their own reflections**;

Therefore, young men should **assiduously cultivate their understanding**;

Because they may be *agreeable to others, and may find comfort in their own reflections, when age renders vapid their taste for juvenile amusements.*

There is another mode of familiar reasoning, very much in use, which, by transposition, might be either simple or compound: as,

Bravoure has *rendered his country an eſsential service*;
If, therefore, he be not *rewarded*;
He is **treated with ingratitude.**

Here the first is the minor proposition of a regular enthymeme; the second is an hypothetical proposition which reverses the proper conclusion of the enthymeme; and the third is a conclusion grounded on the hypothesis. If we supply the major proposition and proper conclusion of the enthymeme, the respective parts of two acts of reasoning may be expreſsed thus:

WHOSOEVER has *rendered his country an eſsential service* should be **rewarded**;
Bravoure has *rendered his country an eſsential service*;
Therefore, Bravoure should be **rewarded**;
And if, therefore, Bravoure be not *rewarded*;
He is **treated with ingratitude.**

Or we may expreſs the sentence in one hypothetical enthymeme, thus:

If Bravoure, who has *rendered his country an eſsential service*, be not *rewarded*;
He is **treated with ingratitude.**

Or, if we admit the hypothesis, and take the two middle terms together, the sentence might be exhibited in one syllogism, thus:

He who has *rendered his country an essential service, and has not been rewarded,* is **treated with ingratitude;**
Bravoure has *rendered his country an essential service, and has not been rewarded;*
Therefore, Bravoure is **treated with ingratitude.**

And, finally, admitting the hypothesis, the sentence might be reduced to a *causal enthymeme,* thus:

Bravoure has been **treated with ingratitude;**
Because he has *rendered his country an essential service, and has not been rewarded.*

There are several other forms of compound reasoning, in common language, but it would be of little use to give any more instances, since they are only various combinations of the two familiar forms already noticed, and present no difficulty to those acquainted with the rules of simple reasoning. Thus have I endeavoured to describe the first principles of reasoning, and to demonstrate the use of the syllogism. Two general rules are also stated, by the first of which we may, with the utmost facility, reduce a syllogism into the order of familiar reasoning,

and, by the second, dispose an example of familiar reasoning into the syllogistic form. Thus far, then, I have attempted to render the analysis and synthesis complete. To the first rule, *i. e.* the rule for reducing a syllogism into the familiar order of reasoning, I know of no exception, or difficulty attending it. There is, indeed, some nicety in the application of the second rule, which will form the subject of the next chapter.

CHAPTER VIII.

Of elliptical reasoning.

IN the common mode of reasoning, there is very often an ellipsis between the antecedent, and consequent proposition. Now, though this kind of abbreviation promotes dispatch, and contributes much to the elegance of language, it is impoſsible to transpose the reasoning into the syllogistic order, so as to examine the hypothesis and deduction, until the defect is discovered and supplied. For example:

"As I would not trifle with the prejudices of the "poor, because *it is illiberal*, so I would not "always yield to them, because *it is unwise*."

Parr's Diſcourse on Education, page 56.

This sentence presents us with two instances of elliptical reasoning. Now, however forcibly the truth of this reasoning may strike us, it cannot be subjected to our criterion without some supplement. Let us, then, venture to supply the defect thus:

As I would not trifle with the prejudices of the poor;
Because [I *conceive*] *it is illiberal;*
So I would not always yield to them;
Because [I *think*] *it is unwise.*

Now, here it will be seen, that I have supplied a part of the attribute, which forms the *middle term*, and have added the *minor term as the subject of the reasoning proposition*; let us now transpose the examples into the stoic order, according to our rules, and enquire whether they poſseſs the characteristics of truth.

No PERSON WHO *conceives that it is illiberal* would trifle with the prejudices of the poor;
I *conceive that it is illiberal;*
Therefore, I would not trifle with the prejudices of the poor.

No PERSON WHO *thinks it is unwise* would always yield to the prejudices of the poor;
I *think it is unwise;*
Therefore, I would not always yield to the prejudices of the poor.

Now, in each of these examples, the hypothesis which the doctor has assumed, is a repugnance of attributes; or, in other words, it is taken for granted, that to no one person, to whom the attribute, forming the middle term, may be ascribed, can the attribute, forming the major term, be applicable. *Of the number* of those, to whom the respective middle terms are applicable, the doctor declares himself to be *one*, and, of course, to the doctor, cannot be ascribed either of the attributes, forming the respective major terms. Again:

We should not **repine at the infirmities of old age**;
Because *the decay of the body is inevitable*:

That is:

Because [we *know that*] *the decay of the body is inevitable*.

THOSE WHO *know that the decay of the body is inevitable*, should not **repine at the infirmities of old age**;

We *know that the decay of the body is inevitable*;

Therefore, we should not **repine at the infirmities of old age**.

This difficulty will be easily surmounted, by attending to the following observations. When the language is not elliptical or irregular, the subject of the asserting proposition, or some other word or words, as its substitute, must also form

the subject of the reasoning proposition, as in every example preceding this chapter. For, as it has been before observed, the very first principle of reasoning is, that the minor term must be an integral part of a whole claſs, to which the agreement or repugnance of an attribute, or an aſsociation of attributes, are ascribed, as an hypothesis, and we must shew this explicitly or implicitly, either by ascribing the attribute to the whole claſs, and leaving it to be *understood*, that the minor term is therein comprehended, or, by applying the attribute to the minor term, as a part of some whole claſs to which we *understand* the attribute to be universally applicable, or there can be no reasoning. For example: suppose I say,

Peter must die;

And I am asked to shew my reason. I might reply:

Because ALL *men* must die;

Here then, I ascribe a common attribute to *all men*, which forms the subject of my reasoning proposition, and in that subject is Peter represented, among the rest of mankind. Or, I might reply,

Because Peter is *a man*;

And thus I ascribe to Peter the *common name* of a clafs of beings, to all of which, (though not expreſsed,) is understood to belong the attribute *death*. Thus, Peter alone forms the subject of both propositions, and this is more common than the former mode of reasoning.

It will be found exactly the same, where the middle term is no more than an attribute: as

Peter is **an economist**;

It is demanded, why? I might reply,

Because ALL MEN, WHO *live genteelly on a small fortune*, are **economists**.

Now, in the clafs to which I have ascribed the middle term, *lives genteelly on a small fortune*, (though not expreſsed,) is understood to be comprehended Peter, my minor term. Thus, again, Peter alone, or Peter with others, forms the subject of each proposition. Or, I might give the following reason why Peter is an *economist*:

Because he *lives genteelly on a small fortune*;

And then, Peter literally forms the subject of the antecedent, and is represented by the personal pronoun *he*, as the subject of the consequent proposition. But, to prevent mistake, let us state the four preceding examples together: as,

Alone, ⟨ Peter must **die**;
With others, ⟨ Because ALL *men* must **die**.

Here we omit the business of the minor proposition, [Peter is a *man*,] *i. e.* the subtraction.

Alone, ⟨ Peter must **die**;
Alone, ⟨ Because he is *a man*.

Here we omit the business of the major proposition, *i. e.* we omit to state the hypothesis, or what I have called the first step of addition, [ALL *men* must **die**.]

Alone, ⟨ Peter is **an economist**;
With others, { Because ALL MEN WHO *live genteelly on a small fortune* are **economists**.

Here we omit the subtraction, or the business of the minor proposition, [Peter *lives genteelly on a small fortune*.]

Alone, ⟨ Peter is **an economist**;
Alone, ⟨ Because he *lives genteelly on a small fortune*.

Here again we omit the first step of addition, [ALL MEN WHO *live genteelly on a small fortune* are **economists**.]

Thus, then, it is clear, that Peter, either alone, or comprehended in the whole class of beings to which he belongs, forms the subject of the eight preceding propositions.

Now, whenever we have discovered an enthymeme, *i. e.* an act of reasoning in familiar language; and the minor term, (which is commonly found in its true literal character, as the subject of the asserting proposition,) is neither repeated, nor represented by a pronoun, a synonimous term, nor comprehended as one of an indefinite number, so as to form again the whole, or a part of the subject of the reasoning proposition, the language is either elliptical, or otherwise irregular. If the language be elliptical, the surest way of discovering the defective member, is to insert the minor term, or a pronoun agreeing with it grammatically, immediately after the sign of reasoning, when the deficiency will readily present itself to the mind: as,

Books are seldom correct;
Because *human nature is fallible:*

That is:

Because THEY [are *the work of*] *human nature* [*which*] *is fallible.*

Here I have inserted the pronoun *they* in capitals, which represents the minor term *books*, and the copula with a part of the attribute, forming the middle term, between crotchets. The sentence now may be transposed into the stoic order, according to the preceding rules.

The first syllogism, page 81, affords another striking example; for, in familiar reasoning, it would have been expreſsed thus:

Wise men should be **moderate**;
Because *exceſses will cause disease.*

That is:

Because THEY [*know that*] *exceſses will cause disease.*

The regular enthymeme is also frequently elliptical: as,

"There is no subject, in critical learning, "more copious, than this of the just mixture "of simplicity and refinement in writing; "and therefore, *not to wander in too large a* "*field*, I shall **confine myself to a few general ob-** "**servations on that head.**"

Hume's Eſsay on Simplicity and Refinement in Writing.

Now, in instances of this kind, the most ready way to discover the middle term and words in ellipsis is, to state the conclusion without the illative *therefore*; add thereto the *minor term*, preceded by the conjunction *because*, when some of the preceding words, which answer to the question *why*, will present themselves to the mind, together with the defective member, and form the middle term: as,

I shall **confine myself to a few general observations on that head:**

Why?

Because I [am] not [*willing*] *to wander in too large a field.*

HE WHO is not *willing to wander in too large a field,* will **confine himself to a few general observations;**

I am not *willing to wander in too large a field;*

Therefore, I shall **confine myself to a few general observations.**

Again:

Pleasures are deceitful;

Therefore, young men should **curb their inclinations.**

Young men should **curb their inclinations.**

Why?

Because THEY [may be *tempted by*] *pleasures* [*which*] *are deceitful.*

WHOSOEVER may be *tempted by pleasures which are deceitful,* should **curb their inclinations;**

Young men may be *tempted by pleasures which are deceitful;*

Therefore, young men should **curb their inclinations.**

In short, all good acts of reasoning will thus stand the test of every form.

Elliptical reasoning is often compound, and so complicated, that some verbal alteration is

neceſsary to dispose it into artificial order, but the ideas will remain exactly the same: as,

"Division must be **infinite** as well as addition,
"because *the idea of a perfect unity can no more*
"*be arrived at, than that of a complete whole,*
"*to which nothing may be added.*"

Burke on the Sublime and Beautiful, page 129.

That is:

Because division *admits of endleſs repetition*;
And because addition will *ever admit of further increase*;

As:

THAT WHICH *admits of endleſs repetition* must be **infinite**;
Division *admits of endleſs repetition*;
Therefore, division must be **infinite**.

THAT WHICH will *ever admit of further increase* must be **infinite**;
Addition will *ever admit of further increase*;
Therefore, addition, as well as division, must be **infinite**.

Frequent instances will also occur, wherein the subject of the reasoning proposition only will be deficient, *i. e.* wherein neither the minor term, nor a pronoun as a substitute, follows the sign of reasoning, but the attribute, which forms the middle term, will be found complete, and no supplement will be neceſsary: as;

I ought to **avoid the company of libertines**;
For *fear of temptation.*

He who *fears temptation* ought to **avoid the company of libertines**;
I *fear temptation*;
Therefore, I ought to **avoid the company of libertines.**

When the minor term, or its representative alone is defective in the reasoning proposition, the two propositions are usually connected by the conjunction *and*: as,

"Fugitive cant, which is always in a state of "increase or decay, cannot be *regarded as any* "*part of the durable materials of a language*, "and therefore must be **suffered to perish with** "**other things unworthy of preservation.**"

Preface to Johnson's Dictionary.

Words which cannot be *regarded as any part of the durable materials of a language* must be **suffered to perish with other things unworthy of preservation**;
Fugitive cant cannot be *regarded as any part of the durable materials of a language*;
Therefore, fugitive cant must be **suffered to perish with other things unworthy of preservation.**

Instances wherein it is most difficult to supply the defect, are such hypothetical enthymemes as follows:

If the sun be *fixed;*
The earth must move.

The above is an example of what doctor Watts calls an hypothetical proposition, and is given in his Logic, page 167.

Here the ellipsis is very considerable, for two middle terms are neceſsary to prove the conclusion, one of which is totally omitted, together with a part of the aſserting proposition; but the example may still be submitted to our rule: as,

If the sun [which is *continually changing its aspect towards our orb*] be *fixed* IT [**proves that**] **the earth must move.**

Let us now admit the hypothesis, and a syllogism may be formed thus:

WHATSOEVER is *continually changing its aspect towards our orb*, and is *fixed*, **proves that the earth must move**,
The sun is *continually changing its aspect towards our orb*, and is *fixed*;
Therefore, the sun **proves that the earth must move.**

The eſsential members of reasoning, both simple and compound, are frequently displaced and divided by auxiliary matter, but á little exerciſe will soon enable the learner to distinguish them, and to supply the defect in elliptical language, and will render this kind of composition and resolution very familiar, though the reasoning be ever so complicated; and its advantages will be striking to one who has made but a small progreſs in the study.

CHAPTER IX.

Of oblique or indirect reasoning.

ALL the forms of familiar reasoning we have hitherto noticed, I call *direct*, because the minor term, or its substitute, expreſsed or implied, is the subject of both propositions. The true principle of reasoning, as we have repeatedly observed, is, that the agreement or repugnance between the *middle* and *major* terms, is admitted, and that the minor term must either be comprehended in the middle term, as the subject of the major proposition, or be one or more of the beings to which the attribute, forming the middle term, is applicable. Suppose we say,

Study is **useful**;
Because it *improves the mind:*

The reasoning is direct, for *study* is the subject of both propositions; it is literally the subject of the first, and is represented by the pronoun *it*, as the subject of the second. What I call *oblique* or *indirect* reasoning, is that wherein the minor, whether expreſsed or implied, does not form the subject of both propositions: as,

Study is **useful**;
Because *the mind is improved by* it.

Now here the reasoning is oblique or indirect, for, in the reasoning proposition, a part of the middle term itself is subjected, and the pronoun *it*, which represents the minor term *study*, forms a part of the predicate. An example of oblique reasoning must be rectified, *i. e.* so modified that the minor term may be subjected in each proposition, before it can be transposed into the stoic order. Again:

Volatilis, a youth of good natural genius, will never be **a great scholar**;
Because *the temptations of pleasure seduce* him *to neglect his studies.*

Here the pronoun *him*, a part of the predicate of the reasoning proposition, represents the

minor term, *i. e. Volatilis*; and, to rectify the reasoning, must be aſsumed as the subject of the reasoning proposition, thus:

Because he is *seduced to neglect his studies by the temptations of pleasure*;

And then a syllogism may be formed according to the preceding rules, thus:

THE YOUTH WHO is *seduced to neglect his studies by the temptations of pleasure* will never be a great scholar;

Volatilis, a youth of good natural genius, is *seduced to neglect his studies by the temptations of pleasure*;

Therefore, Volatilis, &c. will never be a great scholar.

Some writers, who reason in an extensive style, will frequently take the minor term, or its substitute, obliquely, in the *aſserting* proposition, thus:

"As the constituent elements of the material "world are *only perceptible to our organs of* "*sense in a state of combination*; IT follows, "[that the ideas or sensual motions excited by "THEM, are never received singly, but ever "with a greater or leſs degree of combina-"tion."]

Darwin's Zoonomia, page 127.

Here it may be observed, that the word *them*, in the aſserting proposition, is a substitute for the minor term, *i. e. the constituent elements of the material world*, and the aſserting proposition must be rectified, so that the minor term, or its substitute, may be subjected, as in the reasoning proposition, before the sentence can be submitted to our criterion. This may be effected in the following manner:

It follows that THEY, [*i. e.* the constituent elements of the material world,] never **excite the ideas or ſensual motions ſingly, but ever with a greater or leſs degree of combination.**

With the conclusion thus rectified, the sentence may readily be transposed into the stoic order: as,

THINGS WHICH are *only perceptible to our organs of ſense in a state of combination*, never **excite the ideas or ſensual motions ſingly, but ever with a greater or leſs degree of combination;**

The constituent elements of the material world are *only perceptible to our organs of ſense in a state of combination;*

Therefore, the constituent elements of the material world never **excite the ideas or ſensual motions ſingly, but ever with a greater or leſs degree of combination.**

There is still something further that may be worthy of remark, in the preceding sentence quoted from doctor Darwin. The particle *as*, signifying *since*, is the sign of reasoning; and all the words standing between crotchets are represented by the pronoun *it*, printed in small capitals. This may be discovered by asking the question, what follows from the preceding reason? The answer is,

> *That* the ideas or sensual motions excited by them are never received singly, &c.

And this is the proper subject of the predicate *follows*.

Frequent instances occur, wherein the reasoning is both oblique and elliptical, that is, wherein the minor term has no representative in the reasoning proposition, but the middle term itself is divided, one part thereof being subjected, and another part being predicated, and it is very difficult to rectify the irregular proposition, without dreſsing out the ideas in different language: as,

> " A large government is accustomed by degrees to
> " tyranny, because *each act of violence is at first*
> " *performed upon a part, which, being distant from*
> " *the majority, is not taken notice of, nor excites*
> " *any violent ferment.*"
>
> *Hume on the Rise and Progreſs of the Arts and Sciences.*

Now here the minor term is *a large government*, and this is not represented by any word or words in the reasoning proposition; nor is it even implied, for one part of the middle term itself is subjected, and the other part is predicated, but still the middle term, which follows the conjunction *because*, must be understood to comprehend the minor, or there can be no reasoning. Let us then insert a substitute for the minor term, after the sign of reasoning, and endeavour so to modify the language, that the whole of the middle term may be predicated: as,

A large government is accustomed by degrees to tyranny;
Because IT [*sustains each act of violence, at first in*] *a part, which, being distant from the majority, is not taken notice of, nor excites any violent ferment.*

This sentence, thus rectified, may be regularly transposed into the stoic order, for examination, thus:

A GOVERNMENT, THAT *sustains each act of violence at first in a part, which, being distant from the majority, is not taken notice of, nor excites any violent ferment,* is accustomed by degrees to tyranny;
A large government *sustains each act of violence at first in a part,* &c.
Therefore, a large government is accustomed by degrees to tyranny.

Again, POPE, in his preface to Homer's Iliad, page 364, vol. vi. of his works, published 1770, in comparing Homer and Virgil, reasons thus:

"If the Grecian poet has not been so frequently "celebrated on this account as the Roman, the only "reason is, that *fewer criticks have understood* "*the one language than the other.*"

Now here is an hypothetical enthymeme, both elliptical and oblique; the inference which has the first place, preceded by the particle *if*, signifying *though*, is regular; but, in the reasoning proposition, the minor term is wanting, and the middle term is taken obliquely; so that in the present order of the language, it is impossible to transpose the example into the stoic order. But, by inserting the minor term, and inverting the order of the middle term, the irregular proposition may be rectified thus:

The only reason is, that THE GRECIAN POET has been *understood by fewer criticks than the Roman poet.*

This example, thus rectified, may now, by admitting the hypothesis, be transposed into the stoic order, according to the preceding rules.

Metaphysical, and some other subjects which are not easily comprehended, even when detailed

in language approaching nearly to mathematical simplicity, are greatly obscured by this sort of reasoning. I have quoted the following paſsage, from vol. i. page 11, of the 'Disquisitions relating to Matter and Spirit, of doctor Priestley,' one of the most perspicuous writers of the present age, just to shew in what a state of divided embarraſsment elliptical oblique reasoning is frequently found, in subjects of themselves sufficiently abstruse.

" [It will be readily allowed, that every body,
" as solid and impenetrable, must **neceſsarily**
" **have some particular form or shape**;] but it is no
" leſs obvious, that no such *figured thing can*
" *exist*, unleſs *the parts*, of which it consists,
" have a mutual attraction, so as either to *keep*
" *contiguous to, or preserve a certain distance*
" *from each other*. [This power of attraction,
" therefore, must be **eſsential to the actual existence**
" **of all matter**;] since no *substance* can retain
" any form *without it*."

Now here are two acts of reasoning, the one I call a *regular enthymeme*, and the other an *obvious enthymeme*. The respective conclusions stand within crotchets. Let us then state them separately, and ask the question on what reason each is grounded, when we shall find that the words

in italic, though strangely dispersed and confounded, when joined to the neceſsary supplement, will form the proper answer.

Why must this power of attraction be **eſsential to the actual exiſtence of all matter**?

Because IT [*makes*] *the parts* [*of every*] *figured thing keep contiguous to, or preserve a certain distance from each other.*

Why shall we readily allow that every body, as solid and impenetrable, must **neceſsarily have ſome particular form or ſhape**?

Because WE [must *confeſs that*] *no substance can exist without it.*

These examples may now be transposed into the stoic order, according to the preceding rules.

Oblique elliptical reasoning is very common, and though the connection is clearly understood in short familiar language, when extended to any considerable length it is often obscure; and I am of opinion, that, had the principles of reasoning been better attended to, it never would have been so radically incorporated in the fashionable styles of modern language.

Thus I have endeavoured to shew, that, though it would be folly to attempt to introduce syllogisms into writing or common converſation, yet that it is eſsentially neceſsary we

should be able to distinguish the parts of a syllogism, and that the syllogistic form is an invariable standard with which we may compare the different forms of reasoning, that without test, regulation, or control, have fortuitously prevailed. So little, indeed, has the art of reasoning been attended to in the present age, that the two logical writers in the highest esteem at our universities have, as appears in pages 116, 117, 118, mistaken for propositions the two most useful forms of familiar reasoning among mankind.

By a knowledge of the eſsential parts of reasoning, and an acquaintance with the stoic form into which they may be transposed, we can exhibit the proof in a kind of mathematical order, and thus, by comparing the different forms of familiar reasoning with an invariable standard, observe how far they correspond with a perfect pattern, perceive where the language is elliptical, discover the cause of many anomalies, learn to shape our own language, and to detect in others fallacy and error.

The importance of this kind of analysis must be obvious, for it not only enables us to exhibit the ground on which our own demonstrations depend, but teaches us how to trace up to the

fountain head the evidence on which the conclusions of others are supported, and gives us a distinct view of the points on which the truth of the reasoning depends. Or, in other words, when the reasoning is just, we can perceive why it is so; and when it is inaccurate, we can point out exactly where the error lies. Moreover, fallacy or error, which may escape detection in one order of reasoning, will frequently strike the mind with sufficient force, when transposed into another order.

CHAPTER X.

Of complex syllogisms.

COMPLEX syllogisms, than the invention of which nothing could have been more embarrasing to the art of reasoning, or have contributed more to bring syllogism into contempt, are all reducible to our rules. The words which are said to render the syllogism complex, form no part of the esential members of reasoning; to demonstrate this, let us reduce the following examples of complex syllogisms, given by doctor Watts.

The doctor, page 293 of his Logic, says, "Though this sort of argument is confeſsed to "be entangled or confused, and irregular, if "examined by the rules of simple syllogism; "yet there is a great variety of arguments used "in books of learning, and in common life, "whose consequence is strong and evident, and "which *must* be ranked under this head: as,

I.

"*Pious men are the (only) favourites of heaven*; "*true christians are favourites of heaven*; there- "fore, *true christians are pious men.*"

Let us now state the conclusion of this syllogism, without the illative therefore, and ask the question, why? as,

True christians are pious men.

Why? On reviewing the doctor's premises we shall find,

Because they are *favourites of heaven.*

To be the proper answer; and that the term *only*, within parenthesis, which is said to render the reasoning complex, is extraneous, *i. e.* forms no part either of the *major*, *middle*, or *minor term.* The buneſs of a reasoner is to endeavour to distinguish

the remote matter; having done this, we shall find no example too stubborn for our rule: as,

ALL *favourites of heaven* are **pious men**;
True christians are *favourites of heaven*;
Therefore, true christians are **pious men**.

II.

"*(None but) physicians came to the consul-*
"*tation; the nurse is no physician*; therefore *the*
"*nurse came not to the consultation.*"

The nurse **came** not **to the consultation.**

Why?

Because **she was** *no physician.*

Or:

THOSE WHO *were no physicians* **came** not **to the consultation;**
The nurse *was no physician*;
Therefore, the nurse **came** not **to the consultation.**

III.

"*Knowledge is better than riches; virtue is*
"*better than knowledge*; therefore *virtue is better*
"*than riches.*"

Virtue is **better than riches.**

Why? The answer, in the doctor's premises, is,

Because it is *better than knowledge.*

Here then we behold the abstract parts, and the syllogism might be simply stated thus:

THAT WHICH is *better than knowledge* is **better than riches**;
Virtue is *better than knowledge*;
Therefore, virtue is **better than riches.**

IV.

"*The fogs vanish as the sun rises*; but *the fogs* "*have not yet begun to vanish*; therefore *the sun* "*is not yet risen.*"

Here the doctor seems to have been so entangled in the complexion of syllogisms, that he has mistaken the cause for the effect. *The sun not being yet risen*, may be a reason why the fogs have not yet begun to vanish, but *that the fogs have not yet begun to vanish*, should be taken as a reason why *the sun is not yet risen*, appears to me anomalous. I should expreſs this example of reasoning in familiar language, thus:

The fogs have not **yet begun to vaniſh**;
Because the sun *is not yet risen*:

And thus it forms an example of elliptical reasoning, which, with the following supplement, may be transposed according to our preceding rules:

The fogs have not **yet begun to vaniſh**;
Because THEY [have not been *yet exhaled by*] *the sun* [*which*] *is not yet risen.*

V.

" *It is neceſsary that a general understand the* " *art of war*; *Caius does not understand the art of* " *war*; therefore *it is neceſsary Caius should not be* " *a general.*"

Caius should not be **a general.**

Why?

Because he does not *understand the art of war.*

He who does not *understand the art of war* should not be **a general**;

Caius does not *understand the art of war*;

Therefore, Caius should not be **a general.**

Now, it is clear, that the words which are said to complex the syllogism, form no part of the eſsential members on which the force of the reasoning depends; nor could this perplexity and confusion ever have prevailed, had the principles of reasoning been better understood. After stating other similar instances, claſsing each under a particular denomination, the doctor says, " Besides all these, there is a number of com- " plex syllogisms, which can hardly be reduced " under any particular titles, because the forms " of human language are so exceedingly various, " as:

" *Christianity requires us to believe what the* " *apostles wrote*; *Saint Paul is an apostle*; there- " fore *christianity requires us to believe what Saint* " *Paul wrote.*"

Christianity **requires us to believe what Saint Paul wrote.**

Why?

Because it *requires us to believe what the apostles wrote.*

Or:

THAT WHICH *requires us to believe what the aposles* wrote, **requires us to believe what Saint Paul wrote.**

Christianity *requires us to believe what the apostles wrote*;

Therefore, christianity **requires us to believe what Saint Paul wrote.**

" *No human artist can make an animal*; *a fly*, " *or a worm, is an animal*; therefore *no human* " *artist can make a fly, or a worm.*"

No human artist can **make a fly, or a worm.**

Why?

Because he cannot *make an animal.*

HE WHO cannot *make an animal*, cannot **make a fly, or a worm**;

No human artist can *make an animal*;

Therefore, no human artist can **make a fly, or a worm.**

The doctor has stated many other instances, but the preceding is a sufficient specimen of complex syllogisms. Complex, indeed, they are properly denominated. Such trifling jargon has puzzled the learner, excited the ridicule of wit, and brought the whole system into such contempt, that the vulgar, in many parts of the kingdom, use the term logic, to signify any thing unintelligible.

By a knowledge of syllogistical analysis, we are enabled to distinguish the abstract members of reasoning, and, by a knowledge of the figure of a syllogism, *i. e.* the order in which the respective parts are disposed, we are enabled to view the hypothesis, and to examine the accuracy of the deduction.

I perfectly agree with doctor Watts, "That "the forms of human language are exceedingly "various," and that is the very reason why I consider syllogistical knowledge to be useful; for, whatever be the irregularities, or peculiarities of language, there can be no reasoning, not even in the most elliptical forms of familiar dialogue, unleſs the major and minor terms be fully expreſsed, and so considerable a part of the middle term, that the deficiency may be easily supplied.

Now, whatever the peculiarities, or irregularities of language may be, they cannot posſibly affect the remote matter of the syllogism, for though the parts be dispersed by the intervention of extraneous matter, and stand very remote from each other, yet, they may be easily discovered, and, when fairly disengaged from foreign incumbrance, may be readily disposed in regular artificial order. If then, as I have endeavoured to prove, the syllogism be a standard into which every act of reasoning may be transposed for examination, its form, so far, is useful. But if the standard itself be irregular, or will not embrace all the various forms of familiar reasoning, then, instead of assisting us in our enquiries after truth, it will add new difficulties, and be embarraſsing in the extreme ; for we could better distinguish truth from falsehood in familiar language, to which we are accustomed, than in the perplexity of an artificial arrangement, which exhibits the parts of reasoning, not only without a proper distinction, but in a state still more deranged and disorderly. In short, I am of opinion, that if the most fertile genius had purposely studied to obscure and render perplexing the art of reasoning, he could have suggested nothing more effectual than complex syllogisms.

CHAPTER XI.

Of conjunctive syllogisms.

AMONG the number of distinctions which have tended to obscure the true principles of reasoning, are all those syllogisms called *conjunctive*. I shall examine a few instances of this kind of *argument*; first, to shew with what trifles the learned, for some centuries, have amused themselves; and, secondly, to prove that wherever an act of this sort of reasoning occurs, how readily it might be subjected to our rules.

"*If there be a God, the world is governed by providence*; but *there is a God*; therefore *the world is governed by providence*."

An example of the hypothetical syllogism in Dr. Watts's Logic, page 296.

This sentence consists of two *elliptical oblique enthymemes*, and is one of those puerile inconsistences called *an argument from the position of the antecedent, to the position of the consequent*. Both these enthymemes convey the very same meaning; for it is manifest, that what is taken hypothetically in the first, is taken positively in the second, without any proof whatever. By admit-

ting the hypothesis, they will be found each to contain the very same words; and, by rectifying the aſserting propositions, the examples may be united, and subjected to our rule, thus:

If God be *existent*;
He **governs the world by providence.**
Why?
Because He is *the director of all things.*

Here it will be observed, that the middle term is an attribute, which, though not expreſsed, is understood to belong to the minor term *God.* Now, let the attribute, which answers to the question, be preceded by a sign sufficiently general to comprehend the minor term *God*, and a syllogism may be formed thus:

THE MIGHTY BEING, WHO is *the director of all things*,
governs the world by providence;
God is *the director of all things;*
Therefore, God **governs the world by providence.**

In the following page, the doctor gives another instance, of what is called the conditional syllogism; thus:

"*If atheists are in the right, then the world* "*exists without a cause;* but *the world does not* "*exist without a cause;* therefore *atheists are not* "*in the right.*"

This is called *an argument from the removal of the consequent, to the removal of the antecedent.*

This sentence also comprehends two elliptical enthymemes. The first affirms hypothetically; and the second, without shewing any reason, reverses the affirmation. The first conclusion depends on the truth, or falsehood, of the hypothesis. The reason on which the final conclusion is grounded, may be discovered by stating it, and asking the question thus:

Atheists are not in the right.
Why?
Because THEY [*maintain that*] *the world exists without a cause.*

This, the reader will now readily transpose into the syllogistic order. If any thing can be more truly ridiculous than the examples we have just noticed, it is the sage advice that many writers have given to young disputants, how to oppose each other in the discussion of weighty matters, which may be submitted to this kind of determination.

Page 298, doctor Watts gives the following, as an example of the *disjunctive syllogism.*

"*The earth moves either in a circle, or an* "*ellipsis*; but *it does not move in a circle*; there-"fore *it moves in an ellipsis.*"

Now, what can be the use of such futile trifling as this? It is aſserted that the earth moves in one of two figures: it is then affirmed, without any reasoning whatever, that it does not move in one of those figures; and then, after all this verbal arithmetic, it is discovered that it *moves in the other*. It would be well if, in the consideration of these subjects, we were to attend a little to the practice of familiar language, wherein we should find that he who most avoids circumlocution, while he preserves perspicuity, is considered the most agreeable. Very various, indeed, are the degrees of this excellence; nor is it always the result of an analytical knowledge of language. But if an elliptical sentence be clearly understood by the generality of mankind, it is surely the buſineſs of him who is treating of analysis, to enquire what those few eſsentials are, which men have chosen to represent, in many instances, more than treble the number of words. And, in order to examine the utility of his own bulky structures, he should endeavour to select from them those eſsentials which are found sufficient in the language of common life. Let us, then, transpose the preceding example into the familiar order, to see whether it can be abridged; or, whether men ever have recourse to such unneceſsary deductions. The two first predicates

are two middle terms which must be joined to the conclusion by the conjunction *because*, or the sense will not be complete: as,

The earth **moves in an ellipsis.**

Why?

Because it *moves either in a circle, or an ellipsis, and does not move in a circle.*

This surely is sufficiently absurd. Where then is the neceſsity of fabricating artificial forms of reasoning, which are neither useful, nor correspondent to any rational practice? Let us, then, discard this, as another portion of the useleſs lumber which has been esteemed as learned furniture, to embellish the understanding.

When men wander in the dark, they are apt to make remarks which would be totally unneceſsary, could they exercise the power of sight; so, those who have written on the subject of reasoning without a clear conception of its principles, have conceived that the reasoning was eſsentially different, when they perceived that the verbal dreſs, or order varied. To this mistake is owing entirely, the distinction of syllogism into *relative* and *connexive*. Let us examine the following examples of Dr. Watts, pages 299 and 300 of his Logic.

"*Where Christ is, there shall his servants be,* "but *Christ is in heaven*; therefore *his servants* "*shall be there also.*"

This is called a *relative* syllogism. Now let us ask the question,

The servants of Christ shall be **in heaven also.**

Why?

Because they shall be *where Christ is.*

But the middle term, *where Christ is,* is an attribute, and as the minor term, *his servants,* is personal, let it be preceded by the personal sign *those who,* and then this example of reasoning may be expreſsed in our simple form, thus:

THOSE WHO shall be *where Christ is,* shall be **in heaven;**

His servants shall be *where Christ is;*

Therefore, his servants shall be **in heaven.**

Again:

"*As two are to four, so are three to six*; but "*two make the half of four*; therefore *three make* "*the half of six.*"

Three **make the half of six.**

Why?

Because they *bear the same proportion to six as two do to four.*

THAT NUMBER WHICH *bears the same proportion to six as two do to four* **makes the half of six;**

Three *bear the same proportion to six as two do to four;*

Therefore, three **make the half of six.**

The two preceding examples are called *relative* syllogisms. The doctor then gives eight examples of what he calls the *connexive* syllogism; but as the reader must be now well satisfied that one form of artificial reasoning alone is amply sufficient, as a standard into the order of which we may transpose, or with which we may compare every poſsible act of reasoning, let us only examine the first example, and then proceed to the consideration of objects of greater importance.

"*Meekneſs and humility always go together*;
"*Moses was a man of meekneſs*; therefore *Moses*
"*was also humble.*"

HE WHO is *meek* is also humble;
Moses was *meek*;
Therefore, Moses was also humble.

This is no more than admitting, as an hypothesis, an aſsociation of attributes, the first principles of which have been sufficiently explained in the preceding part of this treatise; but the doctor, having found the reasoning expreſsed in a different order of language, seems to have mistaken it for a different species of reasoning.

Thus have I reviewed these ancient trifles, with an intent to prove that they only embar-

rafs the eſsentials of logic, and may be safely suffered to moulder away, with the rest of the rubbish of antiquity.

CHAPTER XII.

Of artificial compound reasoning, or redundant syllogisms.

LOGICAL writers generally rank under this head the *epichirema*, the *dilemma*, the *prosyllogism*, and the *sorites*, to which is usually added the argument by *induction*. But it will appear, upon analysis, that there are but two of them compound, namely, the *epichirema* and the *dilemma*; and these will be found to consist of nothing more than various combinations of the simple forms of reasoning, which, for distinction's sake, I have denominated *causal*, *obvious*, *regular*, and *hypothetical* enthymemes.

"We properly call those *compound syllogisms*, says doctor Watts, "which are made of two or "more *simple syllogisms*, and may be resolved into "them." Let us examine the following example of the *epichirema*, given by doctor Watts in his Logic, page 302.

" *Sickneſs may be good for us, for it weans us* " *from the pleaſures of life, and makes us think of* " *dying*; but *we are uneaſy under ſickneſs, which* " *appears by our impatience, complaints, groanings,* " *&c.* therefore *we are uneaſy ſometimes under that* " *which is good for us.*"

This ſentence, as it is ſtated, conſiſts of two enthymemes and a conclusion. The firſt enthymeme is what I have denominated *cauſal*, and the reaſoning is *direct*; in the ſecond, the reaſoning is *elliptical* and *oblique*, and the conclusion is inaccurate. Let us diſtinguiſh and rectify the matter thus:

Sickneſs may be **good for us**;
For it *weans us from the pleaſures of life*, and *makes us think of dying*;
But we are **uneaſy under ſickneſs**;
Since we *manifeſt impatience, by our complaints, groanings, &c.*
Therefore, we are **uneaſy ſometimes under that which may be good for us.**

Here it will be ſeen, that the firſt is a *cauſal enthymeme* with two diſtinct middle terms; the ſecond is rectified, and taken as an *obvious enthymeme*; and the conclusion is juſtified by making the propoſition *modal*: for it may be obſerved, that the doctor has premiſed only that ſickneſs

may be good for us, yet he concludes that it *is* good for us, *i.e.* he premises the *poſsibility* of sickneſs being good for us; he concludes that it *positively is* so; or, to expreſs the anomaly in technical language, the premiſs is *modal*, and the conclusion is *pure*.* To discover on what reason the final conclusion is grounded, we have only to state it, and ask the question.

We are **uneaſy sometimes under that which may be good for us.**

Why?

Because we *manifest impatience, by our complaints, groanings, &c. at what makes us think of dying, and weans us from the pleasures of life.*

Thus these words form the respective middle terms of the two enthymemes, and, taking them together, they form one middle term to the final conclusion: thus,

THOSE WHO *manifest impatience, by their complaints, groanings, &c. at what makes them think of dying, and weans them from the pleasures of life*, are **uneaſy ſometimes under that which may be good for them;**

We *manifest impatience, by our complaints, groanings, &c. at what makes us think of dying, and weans us from the pleasures of life;*

Therefore, we are **sometimes uneaſy under that which may be good for us.**

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* Vide page 55.

The epichirema, when formed regularly, is a neat structure: as,

[Studies which regulate the couduct of the mind are **of the utmost importance**;
For they *influence the superintendence of all our actions*;]
[Logic is **a study which regulates the conduct of the mind**;
For it is *wholly employed about its operations*;]
Therefore, logic is **a study of the utmost importance.**

Now here the two *enthymemes*, standing between crotchets, contain each the remote matter of a syllogism, and may be formed into separate examples, according to our preceding rules. The two middle terms of these enthymemes, when *united*, form the ground on which the final conclusion is supported, as will appear by asking the question: as,

Logic is **a study of the utmost importance.**
Why?
Because it is *wholly employed about the operations of the mind, and influences the superintendence of all our actions.*

This answer is a repetition of the two middle terms of the preceding enthymemes; so that in fact the epichirema is a large syllogism, comprising two inferior syllogisms.

The following is an example of the dilemma, given by Dr. Watts, page 302.

"*In this life we must either obey our vicious* "*inclinations or resist them: to obey them will bring* "*sin and sorrow; to resist them is laborious and* "*painful*; therefore *we cannot be perfectly free* "*from sorrow or pain in this life.*"

Now, in the first proposition of this sentence, two predicates are stated, with one of which it is affirmed, as an hypothesis, that the subject must agree. Then follow two hypothetical enthymemes; the one, supposing the subject to agree with the first predicate, deduces a consequence; and the other, supposing it to agree with the second predicate, deduces a consequence; and, in the conclusion, the two inferences should have been given as the inevitable alternative. I will take the liberty of making a little alteration, that the parts may be viewed distinctly: as,

We in this life must **obey our vicious inclinations** or **resist them**;
If we *obey them*,
We **bring upon us sin and sorrow**;
If we *resist them*,
We must **suffer pain and labour**;
Therefore we, in this life, must **either bring upon us sin and sorrow**, or **suffer pain and labour**.

We may now state each conclusion of the enthymemes separately, and ask the question, why? When we shall find, that the respective middle terms will be the proper answer; and, on stating the final conclusion, we shall perceive that both middle terms together form the reason on which it is grounded: as,

We **bring upon us sin and sorrow.**
Why?
Because we *obey them*, i. e. *our vicious inclinations.*

We must **suffer pain and labour.**
Why?
Because we *resist them*, i. e. *our vicious inclinations.*

We must in this life **either bring upon us sin and sorrow,** or **suffer pain and labour.**
Why?
Because we must *either obey our vicious inclinations,* or *resist them.*

The dilemma is sometimes used in writing and conversation; it is a curious compound, and its structure is worthy of examination. It is used either to shew the inextricable difficulty attending a thing or circumstance, as in the instance we have noticed from doctor Watts, or to expose a fallacy or absurdity. Suppose, for example, it be aſserted, that George the first did not die on

the 11th of June, 1727; it might be answered by a dilemma: thus,

[If George the first did not *die on the 11th of June, 1727;*
He must have **died before** or **after that time**:]
[Now, he could not have **died before,**
Because he *spoke to the surgeon who bled him, on the morning of that day;*]
[Nor could he have **lived after that time,**
For he was *dead before George the second began to reign, which was also on the 11th of June in that year;*]
Therefore, George the first must have **died on the 11th of June, 1727.**

In this example there are no less than four acts of reasoning. The first is an *hypothetical enthymeme*, in the minor proposition of which, the opinion about to be opposed is admitted as an hypothesis; two major terms are then stated in the conclusion of the enthymeme, with one of which, if the hypothesis be admitted, the minor term must be acknowledged to agree. Then follow two *causal enthymemes*. The one proves that the minor term cannot agree with the first major term; and the other proves that it cannot agree with the second. Thus all the possible ground on which the hypothesis can be maintained, is removed, and a final conclusion is made, supported by a union of the two middle terms of the causal enthymemes: as,

George the first must have died on the 11th of June, 1727.

Why?

Because he *spoke to the surgeon who bled him on the morning of that day*, and was *dead before George the second began to reign, which was also on the 11th of June, in that year.*

In page 304 of his Logic, doctor Watts gives the following example of the prosyllogism:

"*Blood cannot think*; but *the soul of man* "*thinks*; therefore *the soul of man is not blood*; "but *the soul of a brute is blood*, according to the "scripture; therefore *the soul of man is different* "*from the soul of a brute.*"

In this sentence there are two acts of reasoning. The first contains the three propositions, or the proximate matter of a syllogism, but the expreſsion and order are both immethodical. The second contains the matter of a regular enthymeme, but the order of the conclusion is reversed. These two acts of reasoning have not the least dependence on each other, and the disorder seems to be owing to an attempt to unite them. They may be regularly stated, in separate syllogisms: thus,

THAT WHICH *thinks* is not **blood**;
The soul of man *thinks*;
Therefore, the soul of man is not **blood**.

THAT WHICH is *blood* is **different from the soul of man**;
The soul of a brute is *blood*, [according to the scripture;]
Therefore, the soul of a brute is **different from the soul of man**.

The *epichirema* and the *dilemma* are clearly compounds, since the final conclusion, in each example, is grounded on an union of the middle terms, which prove also the antecedent enthymemes. But there is no kind of composition, in the preceding sentence, which doctor Watts calls a *prosyllogism*.

The next kind of artificial argument we shall notice, is the *sorites*. This is a succeſsion of propositions, or *hypotheses*, wherein the predicate of the preceding becomes the subject of the subsequent: this may be continued to a great length; finally, however, the subject of the first must be affirmed of the predicate of the latter: as,

A lofty deportment **frequently creates a man many enemies**;
Many enemies may **injure his reputation**;

The injury of a man's reputation may **destroy his credit**;
And *the destruction of his credit* may **promote his ruin**;
Therefore, a lofty deportment may **promote a man's ruin.**

"All these kinds of syllogisms," says doctor Watts, "are called redundant, because they have more than three propositions." But surely this is no more than one simple act of reasoning; for, though the middle term, in this order of language, is divided into three parts, it may be united, in a causal enthymeme, as will appear by asking the question: thus,

A lofty deportment may **promote a man's ruin.**
Why?
Because it *frequently creates him many enemies, who may injure his reputation, which may destroy his credit.*

Let this answer be taken as a middle term, and the whole may be stated in a single syllogism, according to the preceding rules.

Before we conclude this chapter, let us just notice what is called reasoning by *induction.* This is an operation performed *without a middle term.* In this species of reasoning, if it may be so called, either the *minor term* is a *general word,* and the major term is separately affirmed of every person

or collection of persons, thing or collection of things, which the minor term comprehends, that the minor term, in its general capacity, might be finally affirmed, agreeable with, or repugnant to, the major term: or the *major term* is a *genus* or *general word*, and the minor term is separately affirmed of every part which the major term comprehends, that the minor term might be finally affirmed of the major term, in its general capacity: as,

The King consented to relieve insolvent debtors;
The Lords consented to relieve insolvent debtors;
And so did the Commons;
Therefore, the Legislature consented to relieve insolvent debtors.

Now here, the *King*, *Lords*, and *Commons*, are the three parts which the genus *Legislature*, or minor term, comprehends; with each of these respective parts the major term separately is affirmed to agree; and, of course, it must agree with the general word Legislature, which comprehends them all in the conclusion. Again:

Wolves, [which were formerly so abundant in this island,] are not to be found in England, are not to be found in Wales, nor in Scotland;
Therefore, wolves are not to be found in Great Britain.

Here the words *England*, *Wales*, and *Scotland*, are the respective parts comprehended in the *major term* Great Britain; and as the respective parts are affirmed to agree with the minor term separately, they must, in the conclusion, when represented by a collective name, be affirmed to agree with it there also.

This discovery is attributed to Lord Bacon, and was once thought of considerable importance; but it is a circuitous mode of exhibiting a proof, and is very seldom practicable; for, however essential the doctrine of *genus* and *differentia* may be, it has been so much neglected, that the extent and comprehension of each *genus* and *species* are far from being clearly ascertained; and these defects have given birth to the most violent disputation. Now wherever all the parts which are comprehended in a general word cannot be distinctly enumerated, there *induction* is defective; and, though it is sometimes used in familiar language, it is the most uncertain and defective form of exhibiting a proof, in the practice of mankind.

Let us now finally observe, that every proof by reasoning, whether artificial or familiar, simple or compound, is commonly called a demonstration. This general term has been said to

comprehend two classes, the first called demonstration *à priori*, which signifies an inference of the *effect* from a knowledge of the *cause*; the second called demonstration *à posteriori*, which is an inference of the cause from a knowledge of the effect. But the principal business of reasoning is, to shew that particular things must or must not be ranked under certain general denominations, because they do or do not possess the general characteristic signs, and this has nothing to do either with causes or effects; so that these distinctions cannot, properly, be applied to an act of reasoning considered collectively, but belong to the hypothesis alone; for it is experience and observation that teaches us the relation between causes and effects. For example: We know by experience that a total privation of nutriment will cause speedy death. Hence we admit, *à priori*, that *all those who are totally deprived of nutriment must die speedily*, and we may reason from it thus:

ALL THOSE WHO are *totally deprived of nutriment*
must die speedily;
Peter is *totally deprived of nutriment*;
Therefore, Peter must die speedily.

Now this, abstracted from the hypothesis, only shews that the individual, Peter, must be considered as one to whom the general attribute, *die*

speedily, is applicable. Again: On beholding this page, we must admit, that the cause was an assemblage of types, and hence we may form an hypothesis, *à posteriori*: thus, *all printed pages are formed by an aſsemblage of types.* But, if we reason from this, we only shew that the individual is referable to a general attribute: as,

ALL *printed pages* are formed by an aſsemblage of types;
This is *a printed page;*
Therefore, this was formed by an aſsemblage of types.

These terms, indeed, make a pompous figure in many books, but they are often used by those who choose to soar *in nubibus*, rather than grovel on the footpath of perspicuity.

CHAPTER XIII.

General observations on reasoning.

LET it not be supposed that reasoning is confined to short sentences, because I have chosen them to illustrate briefly. On the contrary, one act of simple reasoning frequently occupies several crowded pages; but such examples are too large for our purpose. The following quotation however, from "Doctor Johnson's proposals for

printing the works of Shakespeare," though short with respect to many which frequently occur, will sufficiently shew to what length a simple act of reasoning may be carried.

" He [Shakespeare] *wrote at a time when our* " *poetical language was yet unformed, when the* " *meaning of our phrases was yet in fluctuation,* " *when words were adopted at pleasure from the* " *neighbouring languages, and while the Saxon* " *was still visibly mingled with our diction.* The " reader is therefore **embarrassed at once with dead** " **and with foreign languages, with obsoleteness and** " **innovation.** *In that age, as in all others, fashion* " *produced phraseology, which succeeding fashion* " *swept away before its meaning was generally* " *known, or sufficiently authorised: and in that* " *age, above all others, experiments were made* " *upon language, which distorted its combinations,* " *and disturbed its uniformity.*"

The first two periods in this passage form an elliptical enthymeme, to which the supplement may be added according to our rules, pages 141, 142, 143. And the last period, together with several subsequent sections, is an auxiliary to the middle term; for it exhibits further difficulties attending the writings of Shakespeare, and of course tends to strengthen the middle term; *i. e.* to shew more forcibly the cause of the reader's

embarrassment. The three preceding sentences may be exhibited, with the supplement, in one *causal enthymeme* thus:

The reader is embarrassed at once with dead and with foreign languages, with obsolete terms and innovation;

Because HE [*peruses an author who*] *wrote at a time when our poetical language was yet unformed, when the meaning of our phrases was yet in fluctuation, when words were adopted at pleasure from the neighbouring languages, and while the Saxon was still visibly mingled in our diction. And in that age, as in all others, fashion produced phraseology which succeeding fashion swept away before its meaning was generally known, or sufficiently authorised: and in that age, above all others, experiments were made upon language, which distorted its combinations and disturbed its uniformity.*

It is very common to find the medium or reason from which an inference is drawn resumed after the conclusion, and extended to a very considerable length. A forcible reason is first stated, on which a conclusion is grounded, the writer then proceeds to add auxiliary matter to strengthen the proof, as in the preceding instance.

Several numbers of the Spectator, written by Mr. Addison, may be considered as little more than one simple act of reasoning. He begins by asserting something; and then, having stated a

reason, he continues literally and figuratively to illustrate his medium, *i. e.* his reason, to the end of the number.

There are often several reasons adduced to support one assertion; some will be *perfect* and stated *directly*, others will be *elliptical* and *oblique*, and reasons are frequently given for the sake of illustration or ornament, but one principal reason is generally the index of truth. Wherever an inference presents itself, the words which answer to the question why? or in consequence of what? form the principal reason; but it will sometimes stand very remote, as in the following instance:

" *It is apprehended, that arbitrary power would*
" *steal in upon us*, were we not careful to pre-
" vent its progreſs, and were there not an easy
" method of conveying the alarm from one end
" of the kingdom to the other. The spirit of
" the people must frequently be roused, in order
" to curb the ambition of the court; and the
" dread of rousing this spirit must be employed
" to prevent that ambition. Nothing is so
" effectual to this purpose as the liberty of the
" preſs; by which all the learning, wit, and
" genius of the nation may be employed on
" the side of freedom, and every one be ani-
" mated to its defence. As long therefore as

" the republican part of our government can
" maintain itself againſt the monarchical, it will
" naturally be careful to keep the preſs open, as of
" importance to its own preſervation."

Hume's Eſſays, vol. i, pages 24, 25.

Now let us state the conclusion, and ask the question: as,

It will naturally be careful to keep the preſs open as of importance to its own preſervation.

Why?

Because *it is apprehended that arbitrary power would steal in upon us.*

And upon these words the force of the inference depends; for if we take the word *apprehended* actively, and supply a proper substitute for the minor term, the reasoning may be disposed in the stoic order, thus:

THE INTEREST WHICH *apprehends that arbitrary power would steal in upon it* will naturally be careful to keep the preſs open, as of importance to its own preſervation;

We, who maintain the republican part of our government, *apprehend that arbitary power would steal in upon us*;

Therefore, we shall naturally be careful to keep the preſs open, as of importance to our own preſervation;

It is a common error, especially among the modern disciples of Aristotle, to affirm that Logic has nothing to do with that class of propositions which are expressed in what grammarians call the *optative* and *imperative* moods, *i. e.* that such propositions can form no part of an act of reasoning: but this is one among the innumerable mistakes to which the art of reasoning has been subject. For example, let us state a syllogism, comprehending a proposition expressed in the optative mood:

ALL THOSE WHO *wish to live in peace* will **oppose the levelling system**;
I *wish to live in peace*;
Therefore, I will **oppose the levelling system.**

And a syllogism may be formed thus, with a proposition expressed in the imperative mood:

WHOSOEVER *says, let us rebel against the king*, is **guilty of high treason**;
Wat Tyler *said, let us rebel against the king*;
Therefore, Wat Tyler was **guilty of high treason.**

Reasoning, which regulates all things, and should itself have been the standard of regularity, has never been clearly explained, and, of course, has been subject to no regulations. Volume after volume is offered to the public, professedly to demonstrate the truth, or falsehood of, perhaps, one, two,

or, three simple propositions, which are often never regularly stated, and, if properly stated, the parts are seldom defined; so that, after perusing a bulky volume or volumes, in which, perhaps, wit, ingenuity, taste, humour and learning may be displayed, the reader lays down the book so charmed with the splendor of the writer's abilites, or disgusted with his want of skill, that he decides, either in the affirmative, or negative, without having fixed upon any reason, or number of reasons, to justify his determination. That is to say, the reader would find, perhaps, by a candid enquiry into his own motives, that he has been either charmed into consent, or disgusted into opposition, rather than convinced by the force of reason.

The principal difficulty which opposes our reaching to the highest degree of human certainty is a want of method in our reasoning. There are, as I have endeavoured to shew, but two general kinds of reasoning; in the one, what I have called the first step of addition, forms the hypothesis; in the other, the subtraction forms the hypothesis. In the latter kind of reasoning, *i. e.* where the subtraction forms the hypothesis, it is hardly possible to commit an error; for its force is so obvious and striking, and its parts are so seldom divided by parenthetical matter, that there is little or no difficulty attending it. It is in the other form of

reasoning where the greatest embarrasments occur. Let us then confine ourselves to a few observations on that kind of reasoning.

The whole business of this, which I call the principal kind of reasoning, is, as we have before observed, to shew that a being or number of beings, an action or number of actions, a passion or a number of passions, *do* or *do not* belong to a certain nominal class, because it or they *do* or *do not* possess some characteristic sign by which that whole class is distinguished. Now it is unfortunate that each class is not very accurately circumscribed, and that some of them are so vastly comprehensive and distinguished by such an innumerable train of characteristics, (many of which also belong to other classes,) that it is hardly possible to steer clear of confusion. For example, the extensive class distinguished by the attribute *good*, as opposed to that signified by the attribute *bad*; the tribe denoted by the term *right*, as opposed to that distinguished by the attribute *wrong*; nearly comprehend all the beings, actions, and passions of the moral kind within the scope of our knowledge. These again are indistinctly divided and subdivided into a vast number of inferior, or special classes, such as *prudent, conscientious, charitable, honest, &c.* and *extravagant, avaricious, vindictive, designing, &c.* each of which should

be distinguished by general and special characteristics; but the signs are extremely obscure; so that when we would refer a particular *being*, *action*, or *paſsion* to any of these claſses, we are at a loſs for a distinct sign or signs to direct our determination. Hence violent contests have arisen among mankind, and thousands of volumes have been published, profeſsedly to determine whether a certain being, action, or paſsion, should be ranked with things that are *good* or *bad*, *right* or *wrong*; and still not being able to determine, for want of a proper characteristic sign, the contest has been referred to the sword with no better succeſs. But when the characteristic sign or reason is distinct, our reasoning is equal to mathematical accuracy. For example, suppose it be said that

William the Conqueror must have croſsed the sea;
Because he *came from the continent to this island.*

This reasoning presents as clear a demonstration as any in the mathematics; for we must know the simple relations of number before we can demonstrate relations more distant or remote. And, as soon as we know that this island is surrounded by the ſea, we must admit that

ALL THOSE, WHO [*came to this island from the continent,*]
must have croſsed the sea.

The words then between crotchets form the middle term or reason; *i. e.* the characteristic sign or test to shew, that the individual to whom it is applicable is one of the clafs distinguished by having *crofsed the sea*. No problem in Euclid can be clearer than this sort of demonstration. But it may be demanded, What means, what method shall we pursue to preserve any tolerable accuracy in our reasoning, where there is no definite distinction, no characteristic sign universally acknowledged? I answer, That it is often very difficult: but method, even here, will afford us some afsistance. We should first consider the nature of the subject on which we are about to speak or write; for poetic beauties, mathematical perspicuities, wit, and rhetorical embellishment cannot be blended, without doing manifest injury to each for the accommodation of the others. Let then the poet keep within the province of verbal magic, for the muse must not be shackled by logical arrangement. Let the prosaic entertainer wander in the fields of fancy, dreſsed in all the charming attire of chosen diction; but the enquirer after truth must pursue his course, shackled in the formal trammels of method; and let him even then consider, that his power is circumscribed to the reference of particular things to general heads, by discovering the characteristic signs. If he be in search of the characteristic signs of the extensive clafses, *good*,

bad, *right*, *wrong*, or the like; it would be well to consider that the *bonum in se*, *or malum in se*, *i. e.* that a thing is good in itself, or bad in itself, is not easily established. For, to determine whether a thing be *good* or *bad*, *right* or *wrong*, we must compare it with some other thing, such as a religious, moral, legal, or an equitable precept; and such precepts should contain a definite description of the characteristic signs by which each individual of the class might be distinguished. Having found the characteristic sign or signs, we should then view the particular being, action, or passion under examination, (for we can only examine one particular thing at a time,) and if we find therein the characteristic sign, the *being*, *action*, or *passion* may safely be referred to the nominal class. But it must be confessed that there are many nominal classes, about the characteristic signs of which men have not come to any definite determination. Nor is this a matter of little importance; for a man's life, liberty, and property frequently depend upon our accuracy in these points. Suppose in the law respecting high treason the characteristic signs were to be obscurely defined, in applying it to the case of an individual, to discover whether his particular conduct possessed the characteristic sign of that nominal class, may not the guilty escape or the innocent suffer?

A considerable property was lately at stake in one of the courts at Westminster, on the characteristic sign of a ship's *stranding* on the coast, in order to discover whether, in the individual case then before the court, among the particular injuries the veſsel had suffered, there could be found the general characteristics distinguishing the nominal claſs signified by the term *stranding*. Now if the general term *stranding* had been the sign of one or more clear and definite characteristics, it would have been easy, perhaps, to have discovered them among other minute concomitants inseparable from every particular case: but the court and jury were unable to determine precisely what general characteristics the term *stranding* signified.

The courts of law, indeed, are continually employed in determining whether particular cases do or do not poſseſs the characteristic sign or signs of a general claſs; and often so incorrectly are the signs defined in the statute to which the case is referred, that the court is obliged to search for some similar caſe as a precedent, and decide on the judgment of a predeceſsor who had determined, perhaps, to the best of his ability, without having been able to discover any distinct *reason*, *characteristic sign*, or *middle term* sufficiently satisfactory.

Any thing like perfection, indeed, in many cases, cannot be expected; for the characteristics of truth are frequently unattainable. What I mean by the characteristics of truth, is the evidence of our own senses, or good and faithful testimony Although complete certainty is sometimes not attainable, there is much fairly within the scope of our faculties; and a great part of the confusion and obscurity attending the investigation of truth is owing to our ignorance of the analysis of language, and a want of method. To conclude these observations, however, let me earnestly recommend those, who undertake any kind of demonstration, to reduce the matter to be proved into a number of distinct propositions; *i. e.* to state the specific number of conclusions they mean to prove, and to be careful that the reason, on which each proposition is to be established, be separately adduced. This practice, though militating against the fashionable modes, will wonderfully promote perspicuity; and, when practised with skill and accuracy, will, in many instances, render the demonstration equal to the clearest proof in the mathematics.

CHAPTER XIV.

Of the third degree of human evidence.

IN the first degree of human evidence we form self-evident propositions grounded on *intuition, i.e.* we affirm the agreement or repugnance between a subject and a predicate, on the *immediate* evidence of our own senses. In the second degree of human evidence, we shew, on the ground of an afsumed hypothesis, whose truth we suppose indisputable, that a subject and a predicate must agree or disagree; and this is called *demonstration.* But in the third degree of human evidence we must rest satisfied with the testimony of others, and, however fallible such evidence may be, we have no better proof of the truth or falshood of every thing which occurred before our birth, in the early part of our infancy, and of most of the information we obtain after we arrive at a state of maturity.

There are many who were never out of this island, and of course can have no other evidence of the existence of such countries as *France, Spain, Germany, &c.* than the testimony of others; yet they have no reason to doubt the truth of the existence of such places. We must rely on it for all our historical information; and, in short, a majority

of the circumstances of every kind which come to our knowledge have no other ground of support, yet they merit our entire credence. In all cases of importance, however, where it is in our power to judge for ourselves, we should never trust to this evidence. Logicians have laid down many learned rules to direct the judgment in doubtful cases of this kind; but as such as need their afsistance have not sufficient skill to apply them, and those who are endowed with abilities equal to that purpose require no such aid to direct their determination, these rules can form no part of the eſsentials of logic.

Thus then having viewed the three degrees of human evidence we may now fairly affirm, that every proposition, except those expreſsed in the *imperative* mood, wherein we command an agreement or repugnance between a subject and a predicate, and those in the *optative* mood, wherein we shew a wish or desire of an agreement or repugnance between a subject and a predicate, or such as are expreſsed in the form of an interrogation, must be supported on the ground of *intuition*, *demonstration*, or *testimony*: for if to these we add such propositions as are expreſsed in the form of *admiration* or *exclamation*, which is but a strong mode of affirming, we take in the whole compaſs of language: that is to say, language consists of nothing more than a series of propositions, belong-

ing to one or the other of the preceding classes, linked together, as it were, by certain particles for whose meaning we are principally indebted to the labours of Mr. Horne Tooke.

The greatest obstacle to dialectic improvement has been an almost total neglect of the analysis of language; indeed it is usually thought, by those who have made some little progress in dialectical study, that they could easily divide a written discourse into distinct propositions, but this has been seldom attempted, and (owing principally to ellipsis) is more difficult than one who has never made an effort can possibly conceive. I am well persuaded, however, that the doctrine of propositions and the analysis of language should precede every other part of logic. Learners should have short exercises written for the purpose, wherein the *subjects*, *copulas*, and *predicates* are all expressed. These they should be first taught to transcribe and distinguish, by under-scoring them with a pen, so that the *subjects*, *copulas*, and *predicates* may be fairly exhibited. They should next be advanced to lessons wherein the *copula* is occasionally represented by the sign of its tense, or wholly included in the *predicate*; and so on to exercises wherein the *subject* or *predicate* is occasionally omitted, and some latent propositions are to be supplied, &c. Thus, by advancing progressively, they will be

enabled to transpose the language of any author into logical order, and distinguish the propositions into *affirmative*, *negative*, *pure*, *modal*, *optative*, *imperative*, *interrogatory*, and *exclamatory*, which are all the general classes to be found in language: then, and not till then, should the doctrine of *ideas*, *genus* and *differentia*, be introduced to the notice of the pupil. Doubtless the doctrine of ideas properly forms the first part of logic, in the arrangement of a treatise intended for the learned; but I am well convinced, by some experience, that boys must be immediately introduced into the *praxis* of logic, and that those parts of the science which depend more on the powers of reflection abstracted from words, will naturally be acquired in the practical progress; for the vagrant thoughts of youth can never be sufficiently confined in the first instance, without being engaged in the actual distinction or arrangement of words, or some other sensible objects to fix and employ their attention. An humble attempt to shew what a complete analysis of language would be, will be offered in the next chapter.

CHAPTER XV.

An attempt at analysis.

THE subject on which I am about to eſsay is No. 23 of the Spectator. I have chosen this piece for the two following reasons: first, because it was written by Mr. Addison, who stands high in estimation as an elegant writer; and secondly, because the sentiments it contains are entitled to approbation. It is neceſsary previously to observe, that we have hitherto applied the term proposition only to sentences wherein the sense is perfect; though frequently the subject and predicate of such complete sentences contain in them one or more affirmations neceſsary to the formation and adjustment of the particular aſsociation to be subjected or predicated. Now, each of these subordinate affirmations are complete propositions; but as it was not absolutely neceſsary to enter fully into this *minutiæ* in the consideration of propositions as employed in reasoning, I purpoſely avoided it. In the subsequent eſsay, however, I shall endeavour to distinguish every affirmation.

The following is a difference I make between propositions, for the sake of distinction. I call that a *general proposition* wherein the sense is com-

plete; *i. e.* such sentences as we have hitherto denominated propositions. In the composition of the subject and the predicate of a general proposition, special propositions are frequently employed. Special propositions are either *incident* or *subordinate*. I call a proposition *incident* wherein the idea forming the subject is represented by the pronoun *who*, *which*, or *that*; and I consider that a *subordinate* proposition which has its proper subject, or the pronoun *he*, *she*, *it*, or *they*, but is yet no more than a component part of a larger proposition.

Every general proposition in the text, including the reason on which it is grounded, (where a reason is asfigned,) stands between crotches, thus [ ]. The special propositions are divided from each other (where the intervention of a conjunction does not sufficiently distinguish them) by the space rule, thus |: and the principal particles, whether employed in connecting the parts of a compound subject or predicate, or to exhibit the relation between one proposition and another, are (where the intervention of some other character does not render it unnecefsary) distinguished between greek iotas, thus ι ι. Wherever it is practicable, the general subject is divided from the general copula and predicate by the section, thus §. And wherever the order of the language is such that one special proposition divides the members of another, the two

fragments belonging to each other are distinguished at the two extremes, by the greek epsilon, thus,

[ε The study of logic ε | I think [ε has been much neglected. ε]

The subject and copula of each special proposition, and such particles as form no part of a special proposition, are printed in roman; the middle terms, where reasoning occurs, stand in italic; and every special predicate is printed in black letter.

Number 23 *of the Spectator.*

Division I.

[" There is nothing | that ı more ı betrays a base ungenerous spirit, ı than ı the giving of secret stabs to a man's reputation."]

This sentence comprises three special propositions: the first is subordinate; the second is incident, the predicate of which is also understood to be the predicate of the last. They may be stated in logical order, and the deficiency supplied as follows,

Nothing is existent | that betrays a base ungenerous spirit, ı more than ı the giving of secret stabs to a man's reputation betrays a base ungenerous spirit.

So that, in fact, here are three subjects: there is nothing *is a complete proposition; but it also forms a subject to the principal predicate, and is represented*

by the relative that *in the incident proposition, which forms a second subject; and the principal subject, namely,* the giving of secret stabs to a man's reputation, *makes the third. There are two predicates; the word* there *meaning* existent *is the subordinate, and the words* betrays a base ungenerous spirit, *taken a second time, forms the principal predicate. If we view the sentence as a general proposition, that is, as consisting only of one subject and one predicate, it may be stated in logical order: thus,*

The giving of secret stabs to a man's reputation betrays a base ungenerous spirit more than any thing that is existent.

Division II.

[" ε Lampoons ı and ı satyrs, ε | that are written with wit ı and ı spirit, | ε § are like poisoned darts; ε | which not only inflict a wound, ı but ı make it incurable."]

This sentence is one general proposition, including two incident propositions; the general subject is divided from the copula and predicate by the section.

Division III.

[" *For this reason* I am very much troubled ı when ı I see the talents of humour ı and ı ridicule in the possession of an ill-natured man."]

This sentence being one general, consisting of two special propositions, is a conclusion grounded on a reason expreſsed in the preceding sentence; and the words in italic are substituted for the illative therefore: *as,*

I am **very much troubled when I see the talents of humour and ridicule in the poſseſsion of an ill-natured man;**
Because [I am *aware their*] *lampoons and satires, that are written with wit and spirit, are like poisoned darts; which not only inflict a wound, but make it incurable.*

The text being elliptical, the defect is supplied between crotchets; and the whole may now be transposed into the syllogistic order, according to the rules page 101.

Division IV.

[" There cannot be a greater | **gratification to a barbarous** ı and ı **inhuman wit,** ı than ı to stir up sorrow in the heart of a private person, to raise uneaſineſs among near relations, ı and ı to expose whole families to derision, ı at the time that ı he **remains unseen** ı and ı **undiscovered.**"]

This is one general compound proposition, comprising two which are subordinate. The first subordinate, joined to the principal predicate, forms the predicate of the three subjects which follow: the second subor-

dinate proposition concludes the period. The sentence may be exhibited in logical order: thus,

To stir up sorrow in the heart of a private person is **a gratification to a barbarous and inhuman wit,** | a greater than which cannot be **existent.**

To raise uneasineſs among near relations is **a gratification to a barbarous and inhuman wit,** | a greater than which cannot be **existent.**

And ε to expose whole families to derision, ε at the same time that [or while] he **remains unseen and undiscovered,** | ε is **a gratification to a barbarous and inhuman wit,** ε | a greater than which cannot be **existent.**

When we drop the analysis and consider this sentence generally, i. e. *as one compound proposition, it may be stated in logical order, and the parts distinguished: thus,*

To stir up sorrow in the heart of a private person, to raise uneasineſs among near relations, and to expose whole families to derision, at the time that he remains unseen and undiscovered, § is **a greater gratification to a barbarous and inhuman wit, than any thing that can be existent.**

Division V.

[" If, **besides the accomplishments of being witty and ill-natured,** a man is **vicious also into the bargain,** | he is **one of the most mischievous creatures** | that can enter into **civil society.**"]

Here are three special propositions, which form a complete hypothetical enthymeme, and, admitting the hypothesis, it may be transposed into the stoic order: thus,

He who, *besides the accomplishments of being witty and ill-natured,* is *vicious also into the bargain,* is **one of the most mischievous creatures that can enter into civil society;**

A man poſsesſed of the talents of humour and ridicule, *besides the accomplishments of being witty and ill-natured* is, *vicious also into the bargain;*

Therefore he is **one of the most mischievous creatures that can enter into civil society.**

Division VI.

[" His satyr § will **then chiefly fall upon those** | who ought to be **the most exempt from it.**"]

In this sentence there are two special propositions. When it is considered generally, i. e. *as consisting of one subject and one predicate, the incident proposition is taken in as a part of the general predicate.*

Division VII.

[" ε Virtue, merit, ι and ι every thing ε | that is **praise-worthy,** | § ε will be **made the subject of ridicule** ι and ι **buffoonery.**" ε]

This sentence is a general compound proposition; compound, because it has three subjects and two predicates; the section divides the general subject from the general copula and predicate.

Division VIII.

[" It is impoſsible to enumerate the evils | which arise from these arrows | that fly in the dark."]

This fragment comprehends three special propositons; the general matter may be exhibited thus:

To enumerate the evils which arise from these arrows which fly in the dark § is impoſsible.

The aſsociation composing the general subject is conceived in the mind, and, in the text, is represented before the predicate by the pronoun it: *if it be demanded,* What is impoſsible? *the real subject will be the proper answer.*

Division IX.

[" And ε I know no ι other ι excuse ε | that is or can be made | ε for them, ε than | *that* | the wounds | they give | are only imaginary, ι and ι produce nothing ι more than ι a secret shame ι or ι sorrow in the mind of the suffering person."]

In this division there are five special **propositions**; *their respective parts are somewhat complicated; but, by attending to our different modes of distinction, the members depending on each other may be readily perceived. The pronoun* I *is the general subject, and the rest of the division composes a general predicate.*

Division X.

[" It § must **indeed** be **confessed**, | *that* | a lampoon ; or ; a satyr do* not **carry in them robbery ; or ; murder.**"]

Here the whole of the second proposition forms a general subject to the predicate of the first, and is represented by the pronoun it, *which has the first place. The second proposition is also represented by the relative* that; *as,*

It must be **confessed**—What must be **confessed**? | *That* | a lampoon or a satire do not **carry in them robbery or murder.**

Or,

A lampoon or a satire do not **carry in them robbery or murder**; | *that* | must be **confessed.**

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* When the verb *to do* stands as the copula of a proposition, it is always a substitute for the verb *to be.* This is also a false concord; for the particle *or* disjoins the word *lampoon* from *satyr*; and, as they are taken individually, the phrase should have been written thus: *it must be confessed that a lampoon or a satyr* does *not carry in* it, &c.

Division XI.

[" But, ‹ at the same time, ‹ how many are there | that would not ‹ rather ‹ lose a considerable sum of money, ‹ or ‹ even life itself, ‹ than ‹ be set up as a mark of infamy ‹ and ‹ derision?"]

This passage comprises one subordinate and a compound incident proposition; and the query is, whether the two former predicates would not, by many, be preferred to the latter. The language would stand in the same order in an affirmative sense, i. e. *without the query; and the general matter may be exhibited thus,*

But | many at the same time § are existent, that would rather lose a considerable sum of money, or even life itself, than be set up as a mark of infamy and derision.

Division XII.

[" And, ‹ in this case, a man should consider | *that* | an injury is not to be measured by the notions of him | that gives, ‹ but ‹ of him | that receives it."]

This period is one general proposition: a man *is the general subject;* should *is the sign of the copula; and the rest of the sentence collectively forms the general predicate. It comprises five special propositions; the third and fourth are elliptical: the relative* that, *which may be considered as a part of the predicate of the first, represents the four propositions which follow.*

These remarks will be sufficiently evinced by the following statement:

An injury is not **to be measured by the notions of him** | that **gives it**, but, an injury is **to be measured by the notions of him** | that **receives it**, and, a man should **consider** *that* **in this case,**

A similar instance may be seen also in the ninth division; where the word that, *printed in italic, represents the three final propositions.*

Division XIII.

[" ε Those ε | who can **put the best countenance upon the outrages of this nature** | which are **offered them,** | ε § are not **without their secret anguish.** ε "].

This general comprehends three special propositions, two of which are incident, and the section divides the general matter. It may be remarked, that the second incident proposition is superfluous, and the sentence would be more elegant without it: as,

Those who can put the best countenance upon outrages of this nature, are not **without their secret anguish.**

Division XIV.

[" I § have **often observed a passage in Socrates's behaviour at his death, in a light** | wherein none of the critics have **considered it.**"] 1

That is,

None of the critics have considered it in which light.

Here the division is sufficiently plain without annotation: the pronoun I *is the general subject;* have *is the sign of the copula; and the rest of the sentence forms a general predicate.*

Division XV.

["That excellent man, entertaining his friends, a little before he drank the bowl of poison, with a discourse on the immortality of the soul, | at his entering upon it § says, | *that* | he does not believe | any, the most comic genius, can censure him for talking upon such a subject at such a time."]

In this sentence there are four special propositions; the parts of the first and second, when stated in logical order, will stand thus:

That excellent man, entertaining his friends with a discourse on the immortality of the soul, a little before he drank the bowl of poison, | he, entering upon it, says, &c.

The third stands in logical order; but is, with the fourth, represented by the word that, *which may be considered as a part of the predicate of the second proposition. The section divides the general subject from the general predicate.*

Division XVI.

[" ε This paſsage, ε | I think, | ε evidently glances upon Ariſtophanes, ε | who writ a comedy on purpose to ridicule the diſcourſes of that divine philoſopher."]

The pronoun I *forms the general subject, and all the rest of the period is taken as a general predicate. There is nothing else to remark respecting these three propositions, only that the last is incident, and that the subject of the second is divided from its predicate by the first proposition, as appears by the small epsilons denoting the parts which belong to each other.*

Division XVII.

[" It has been obſerved by many writers, | *that* | Socrates was ι ſo ι little moved at this piece of buffoonery, ι that ι he was ſeveral times preſent at its being acted upon the ſtage, ι and ι never expreſsed the leaſt reſentment of it."]

In this sentence there is one general predicate followed by three propositions, the last of which is elliptical. These three propositions are collectively conceived in the mind, and represented by the pronoun it, *which forms the subject of the principal predicate. The following more general statement will sufficiently manifest these observations.*

Socrates was **so little moved at this piece of buffoonery, that he was several times present at its being acted upon the stage, and never expreſsed the least resentment of it.** *It* [*i.e.* all that precedes] has been **observed by many writers.**

It may, moreover, be observed, that the relative that *also represents the three final propositions: as,*

Socrates was **so little moved at this piece of buffoonery, that he was several times present at its being acted upon the stage:** | *that* [*i.e.* what has been aſserted] has been **observed by many writers.**| And ı he never **expreſsed the least resentment of it:** | *that* *|has been **observed by many writers.**

Division XVIII.

[" But, ı **with submiſsion, I think** | ε the remarks ε | I have **here made** | ε **shews us,** | *that* ε | this unworthy treatment **made an impreſsion upon his mind,** ı though ı he had been **too wise to diſcover it.**"]

Here are five special propositions, composing one which is general. The special parts may be easily distinguished, and it will be seen that the relative that, *in italic, represents the two latter propositions.*

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* Whenever a complete proposition, or a collection of propositions, form the whole, or a part of the subject, or the predicate of another proposition, it is generally represented by the relative *this* or *that*, as may be seen in the 9th, 10th, 12th, and 15th divisions, and several subsequent parts of this eſsay.

Division XIX.

[" When ı Julius Cæsar was lampooned by Catullus, | he § invited him to a supper, ı and ı treated him with ı such ı generous civility, ı that ı he made the poet his friend ever after."]

The parts of these propositions are so perfectly in logical order, that remark is unnecessary. The section shews the general division.

Division XX.

[" Cardinal Mazarine § gave the same kind of treatment to the learned Quillet, | who had reflected upon his eminence in a famous latin poem."]

This is a general proposition, consisting of a primary and incident part, stated in logical order.

Division XXI.

[" The Cardinal § sent for him;] and [after some kind expostulation upon what | he had written, | § assured him of his esteem, ı and ı dismissed him with a promise of the next good abby | that should fall; | which he accordingly conferred upon him in a few months after."]

Here the words after some kind expostulations upon what he had written, *belong to the word*

Cardinal in the nature of an adverb, and shews that the word Cardinal, which is understood to be the subject of the next proposition, is joined to its predicate in a more restrained sense than when it forms the subject of the first proposition. In the first proposition, where the Cardinal sent for him, *the word* Cardinal *is subjected generally; but, in the second place, the subject* Cardinal *is modified by* previous expostulation, *before an assurance of esteem is predicated. The words after* esteem, *to the end of the incident proposition, form another predicate to the subject Cardinal, under adverbial restriction. The last member wherein the relative* which, *forming a part of the predicate, stands before the subject, though seemingly redundant and detached, is taken as a subordinate proposition. This period, it will be seen by the division, is represented as two general propositions,* i. e. *two propositions in which the sense is complete; but, if we supply the ellipses, there will certainly be found four general propositions.*

Division XXII.

["*This* | had so good an effect upon the author, that he § dedicated the second edition of his book to the Cardinal after having expunged the passage | which had given him offence."]

Here are three special propositions: the pronoun this, *forming the subject of the first, represents all the preceding division; so that, in fact, the whole of the twenty-first division forms the subject of this, considered as a general proposition. The first of these special propositions is stated regularly; the second and third may be transposed into logical order: thus,*

ε Quillet, after having expunged the paſsage ε| which had **given the Cardinal offence,** | ε **dedicated the second edition of his book to the Cardinal.** ε

Let us here direct our attention to the comparative signs which, though every where distinguished from the propositional matter between greek iotas, we have not yet noticed in the annotation. On reviewing the first division of this chapter it may be observed, that the comparative sign more, *referring to the particle* than *at the beginning of the third proposition, shews the relation between the first and third subject with respect to the general predicate. The terms* more *and* than *are both totally distinct from the propositional matter considered specially. A similar instance may be observed between the terms* greater *and* than *in the fourth division,* other *and* than *in the ninth division,* rather *and* than *in the eleventh division,* so *and* that *in the seventeenth division,* such *and* that *in the nineteenth, and also in the preceding division. The proper collocation of these particles in language is of great importance to its elegance and perspicuity; their force*

indeed is sufficiently striking, but none unacquainted with the analysis of languags can point out the particular relations they exhibit. After fruitleſs attempts to impart my ideas, with appropriate brevity, on the use and arrangement of these and similar particles, I am fully satisfied that, to direct the reader's attention to them, with a recommendation to students that they will endeavour to discover what particular members of a sentence such comparative signs respectively refer to, will be more useful than any observations I am able to offer within the compaſs of my present design.

Division XXIII.

[" Sextus Quintus § was not **of** ı so ı **generous** ı and ı **forgiving a temper.**"]

This is a regular proposition. But it may be worthy of remark, that the particle so *exhibits the relation between the Cardinal's temper, with a reference to what has been related in the preceding, and that of Sextus Quintus, with a reference to what is about to be detailed in the five subsequent divisions.*

Division XXIV.

[" Upon his being made pope, ı the statue of Pasquin § was, **one night, dreſsed in a very dirty ſhirt, with an excuſe written under it,**] *that* [he was **forced to wear foul linen,** ı because ı *his laundreſs was made a princeſs.*"]

The first part of this division is a simple proposition; the words upon his being made pope *adverbially restrains the subject to time. The two latter propositions compose an elliptical example of the* causal enthymeme: *the defect may be supplied thus,*

Because [he was *deprived of*] *his laundreſs* [*who*] *was made a princeſs.*

These two propositions may now be transposed into the syllogistic order, according to the rules pages 88 *and* 101.

Division XXV.

["*This* § was a reflection upon the pope's sister; | who, | before the promotion of her brother, | was in those mean circumstances | that Pasquin represented her."]

This is one general, comprising three special propositions, stated in logical order. The word this, *forming the general subject, represents the whole of the preceding division; so that the twenty-fourth division forms, by substitution, the subject of this, considered as a general, proposition. The words* before the promotion of her brother *restrain the incident subject* who, *with respect to time, and of course are taken adverbially.*

Division XXVI.

[" As this pasquinade *made a great noise in Rome*, | the pope **offered a considerable sum of money to any person** | that should **discover the author of it.**"]

Here the first predicate is an elliptical middle term, shewing the reason of the agreement of the general subject and predicate which follow. By changing as, *which is the sign of reasoning, into* because, *the matter may be disposed in the order of a* causal enthymeme, *and the deficiency supplied thus:*

The pope **offered a considerable sum of money to any person that should discover the author of it;**
Because HE [*wished to be revenged on the writer of*] *this pasquinade* [*which*] *made a great noise at Rome.*

Division XXVII.

[" ε The author, ε relying upon his holineſs's generosity, ι as also ι on some private overtures | which he had **received from him,** | § ε **made the discovery himself.** ε "]

Here the whole of what precedes the section is employed to compose and adjust the general subject, before the consequent predicate could be attributed.

Division XXVIII.

[" Upon which ; the pope **gave him the reward** | he had **promised**; ; but, ; at the same time, ; **to disable the satyrist for the future, ordered his tongue to be cut out,** ; and ; **both his hands to be chopped off.**"]

Here are three special propositions; the first and second stand in logical order, but the third is elliptical, and the subject which is understood is of a species different from the subject of the first proposition, as will appear by the following transposition, wherein the defect is supplied between crotchets:

Upon which the pope **gave him the reward he had promised**; ; but, ; at the same time, [the pope] **ordered his tongue to be cut out, and both his hands to be chopped off, to disable the satyrist for the future.**

Now in the first, the subject is restrained by the words upon which; *but, in the second proposition, it is influenced by the phrase* at the same time: *so that, though the genus is the same, there is a manifest difference in the species. This special difference, between the subject expreſsed and that which is understood, is similar to what we observed in the twenty-first division; and the words which specifically determine the subjects are adverbial.*

Division XXIX.

[" Aretine is too trite an instance."]

This sentence needs no comment.

Division XXX.

[" Every one § knows | *that* | all the Kings in Europe were his tributaries."]

Here are two special propositions, the latter of which is represented by the relative that, *and forms a part of the predicate of the former: as.*

Every one knows that all the kings in Europe were his tributaries.

Division XXXI.

[" Nay, there is a letter of his extant, | in which he makes his boasts | *that* | he had laid the sophy of Persia under contribution."]

The first proposition in this division may be stated in order: thus,

A letter of his is existent.

The two subsequent propositions present us with an instance, exactly similar to what we have noticed in the preceding division: as,

He § makes his boasts in which, that he had laid the sophy of Persia under contribution.

Division XXXII.

["" Though, ι ε in the various examples ε | which I have drawn together, | ε these several great men ε § behaved themselves very differently towards the wits of the age | who had reproached them, | they all of them plainly shewed | *that* | they were very sensible of their reproaches; ι and ι *consequently* | *that* | they received them as very great injuries."]

Here the two last propositions form a regular enthymeme: *but, in this instance, Mr. Addison's hypothesis is not very good; for,* all those who shew that they are very sensible of the reproaches of a wit may not receive them as very great injuries. *That this exemple of reasoning is not very forcible, however, will sufficiently appear, by transposing it into the form of a* causal enthymeme: *as,*

These several great men received the reproaches of the wits of the age as very great injuries;
Because they *shewed that they were very sensible of them.*

A modal conclusion, perhaps, might have been admitted, but to conclude positively that they all did *receive them as very great injuries, seems rather more than the hypothesis will justify.*

Division XXXIII.

[" For my own part, ı I § would never trust a man | ε that ε | I thought | ε was capable of giving these secret wounds; ε] and [cannot but think | *that* | ε he would hurt the person, ε | whose reputation he thus assaults | ε in his body ı or ı his fortune ε | could he do it with the same security."]

Here are two general, comprising seven special propositions. The third, which is incident, has its subject divided from its predicate and copula by the second proposition. The fourth is elliptical; and the first, fourth, fifth, and seventh are modal.

Division XXXIV.

["There is indeed something very barbarous ı and ı inhuman in the ordinary scribblers of lampoons."]

This period is a compound proposition, and it may be stated generally: thus,

Something indeed very barbarous and inhuman § is existent in the ordinary scribblers of lampoons.

Division XXXV.

[" An innocent young lady shall be exposed | for *an unhappy feature*,] [a father of a family turned to ridicule | for *some domestick calamity*,] [a wife be made uneasy all her life | for *a misrepresented word or action*."]

The preceding are three modal affirmations, with three elliptical reasons shewing on what they are grounded; the deficiency may be supplied thus:

An innocent young lady shall be **exposed,**
Because SHE [*poſſeſſes*] *an unhappy feature;*

A father of a family may be **turned to ridicule,**
Because HE [may have *ſuffered*] *ſome domeſtic calamity;*

A wife [may] be **made uneaſy all her life,**
Because SHE [is *the object of*] *a miſrepreſented word or action.*

Division XXXVI.

[" Nay ı a good, a temperate, ı and ı a just man § shall be **put out of countenance by the repreſentation of thoſe qualities** | that should **do him honour.**"]

This is a general compound proposition, consisting of a primary and an incident part.

Division XXXVII.

[" So ı **pernicious a thing** is wit, | when ı it is not **tempered with virtue** ı and ı **humanity.**"]

That is, taking the proposition generally,

Wit, when it is not tempered with virtue and humanity, § is **ſo pernicious a thing.**

Division XXXVIII.

[" I have, indeed, heard of heedless inconsiderate writers | that, ı without any malice, § have sacrificed the reputation of their friends ı and ı acquaintance to certain levity of temper, ı and ı a silly ambition of distinguishing themselves by a spirit of raillery ı and ı satyr; ı as if ı it were not ı infinitely more ı honourable to be a good-natured man ı than ı a wit."]

There is nothing remarkable here but in the final proposition, which may be transposed thus:

As if ı to be a good-natured man were not honourable ı infinitely more than ı to be a wit is honourable.

Division XXXIX.

[" Where ı there is this little petulent humour in an author, | he is often very mischievous without designing to be so."]

The first proposition in this sentence may be transposed thus,

Where this little petulent humour § is existent in an author, &c.

The second stands perfectly in logical order.

Division XL.

[" *For this reason* | I always lay it down as a rule, | *that* | an indiscreet man is ı more ı hurtful ı than ı an ill-natured one."]

This latter proposition is a conclusion grounded on a reason predicated in the second proposition of division thirty-nine, the words in italic are substituted for the illative therefore; *and the example may be stated in the form of a causal enthymeme; as follows,*

An indiscreet man is **more hurtful than an ill-natured one;**
Because he is *often very mischievous without designing to be so.*

Division XLI.

[" For, as ı the former § will **only attack his enemies,** ı and ı **those** | he **wishes ill to,** | the other **injures indifferently** ı both ı **friends** ı and ı **foes.**"]

The final predicate here forms another reason, or middle term, on which the conclusion in the preceding division is supported: as,

An indiscreet man is **more hurtful than an ill-natured one;**
Because he *injures indifferently both friends and foes.*

Or,

He who *injures indifferently both friends and foes,* is **more hurtful than an ill-natured man.**
An indiscreet man *injures indifferently both friends and foes.*
Therefore, an indiscreet man is **more hurtful than an ill-natured one.**

The first and second predicates in this division will also be found to form an auxiliary proof of the same conclusion.

Division XLII.

[" I § cannot forbear, : on this occasion, : transcribing a fable out of Sir Roger l'Estrange, | which accidentally lies before me."]

There is nothing here to attract our notice, only that the words on this occasion *belong to the general subject.*

Division XLIII.

[" A company of waggish boys § were watching frogs at the side of a pond;] and still, as : any of them put up their heads, | they § would be pelting them down again with stones.] Children, says one of the frogs, | you § never consider, | *that* | though | *this* | may be play to you, | it is death to us."]

Here it may be observed, that the pronoun this, *the subject of the sixth, represents the second and third propositions; that the fifth proposition is modal; and that the word* that *represents the two final propositions.*

Thus have I concluded an esay which has cost me more labour, and given me less satisfaction, than any other chapter in this treatise; for it is extremely difficult to find typographical characters calculated

to distinguish clearly some sentences, and, at the same time, to avoid confusion. I had a notion, indeed, of attempting a minute verbal elucidation; but I soon discovered, that it would be neceſsary to adduce a number of examples, and that such an undertaking would form an ample subject for a ſeparate treatise. I have therefore only endeavoured to exhibit the analysis, by the most perspicuous modes of distinction which suggested themselves to me; and am fully persuaded, that the subject will admit of very considerable improvement.

I will take the liberty of again observing, that easy exercises first written for the purpose, and progreſsively short extracts from our best authors, would be of infinite advantage in the schools. Youths of the tenderest capacity will soon learn to distinguish the parts of a proposition, and to dispose them in order; and they may then be advanced to simple reasoning. Thus would young students, while they are learning the connection between words and ideas, get into the habit of forming methodical combinations of words to expreſs their sentiments with perspicuity; and, by viewing and changing the order of language, acquire a knowledge of the modes of style proper to the various subjects on which they may have occasion to speak or write.

The importance of a most intimate acquaintance with this subject must be striking, even to those who may think a general knowledge of most other branches of learning amply sufficient. For, surely, a clear comprehension of the principal medium by which we are enabled to receive and communicate knowledge, should be the chief object of our earliest solicitude. There are many indeed to whom nature has been so uncommonly bountiful, that they can reason well, and make the most judicious distinctions, though unacquainted with the rules of art: but this is by means of a kind of natural logic; which, like natural grammar and rhetoric, is the more excellent, in proportion as it approaches to the perfection of established rules. Since, then, these distinctions we have noticed do really exist, surely a man, skilled in this branch of learning, will be as superior to others unacquainted with it, as a grammarian is to one unable to distinguish the several parts of speech.

Father Buffier and others have divided style into grammatical and perſonal. They consider personal style as a *genus*, of which grammatical style is a *species*; or, in other words, they mean that style includes syntax, but that syntax does not extend so far as personal style: "for," say they, "the syntax may be very just, when the style is

wretched." It has been farther observed, that grammatical style is confined to the rules of syntax, but that personal style is variable, according to the genius or humour of the writer. To this I beg leave to add, that logical style, which has attracted very little notice, includes syntax, and extends much farther; but it does not reach so far as what is called personal style. I will venture, however, to affirm, that if ever that indefinite thing called personal style, or even punctuation, be reduced to precise system, it must be by a proper knowledge of logical analysis. For he who pretends to prescribe rules for a proper style and a good punctuation, without being able to distinguish subject, predicate, and middle term, will be little better qualified for the undertaking, than a blind man is to mix colours for a painter.

CHAPTER XVI.

Of sophistry or fallacy, inadequate and obscure reasoning.

THE doctrine of sophistry, *i.e.* fallacious ratiocination calculated to deceive, formed a considerable part of ancient logic; and the moderns have also treated of sophistry, ranged under a number of latin names: but I have never seen an example of either of these classes illustrated by a

special act of reasoning; and am decidedly of opinion, that they owe their existence to an ignorance of the true principles of reasoning. I have, indeed, ventured to affirm, page 96, that no reasoning can be false but from a defect in the hypothesis, an error in the deduction, or an inaccuracy in both. Leaving then the ancient distinctions of sophisms to rest in peace, let us enquire wherein reasoning may be false, inadequate or obscure; and, by taking a view of the fountain head, endeavour to discover the very sources of falsehood.

By examining the structure of a complete act of reasoning we shall find, that the first place wherein falacy or error can posibly occur, is in the hypothesis. Now, though all sorts of propositions may form a component part of the subject and predicate of the hypothesis, the proposition or propositions forming the hypothesis must, in their *general* consideration, be either *pure* or *modal*. The truth of all *pure* and *modal* propositions must be grounded either on *intuition*, *demonstration*, or *testimony*; *i.e.* be either of the *first*, *second*, or *third* degree of human evidence. Intuitive propositions admit of no proof of a force equal to the evidence of the senses; for if I affirm *that this paper is white*, no reason *why* can be found, or at least no reason of a force equal to the evidence of the sight. All propositions of

the *second* and *third* degree of human evidence, *i. e.* all those grounded on demonstration or testimony, admit of proof; that is, a reason why the affirmation is made may be assigned: but, very often, the reason cannot be found; either because it never was or can be discovered, or because time has rendered the means of proof impossible. Whenever, then, the hypothesis or major proposition is self-evident, *i. e.* supported on the ground of *intuition*, we have the first and most certain of all human evidence. Hence we may dismiss from our consideration all intuitive propositions, for errors very seldom enter into an hypothesis supported on that ground. Thus, then, we have reduced the principal cause of errors or fallacy in reasoning, namely, errors in the hypothesis, into a very narrow compass; since they must be found in propositions, supported on some supposed previous demonstration, or on testimony. Now, if the hypothesis be offered as the result of demonstration, accompanied by the means of proof, we can examine and judge for ourselves, and hence obtain evidence equal to intuition itself; but this, unfortunately, is seldom or never practised. On the contrary, dogmas and inconsistent assertions are offered in the form of an hypothesis.—What am I saying? Does the majority of mankind know what reasoning is, or when they reason? Nay, are the learned themselves much better informed re-

specting reasoning? Do they know that they reason from a given hypothesis? No. So much has the art of reasoning been neglected, that men, endued with the most happy native talents, improved by all the fashionable embellishments of art, labour inadvertently to obscure a wretched hypothesis under a beautiful superstructure. Thousands of volumes have been written, profeſsedly to prove what never came within the grasp of human comprehension; *i. e.* to prove something without an hypothesis. And all this has been done, as far as reasoning was concerned, without regard to method. The gigantic soul of Locke, by the strength of its own native faculties, removed a mighty maſs of rubbish: but, had that great man been acquainted with the true principles of reasoning, he would have directed his artillery against the piles of gothic structures with much superior method, and would have established his own theory in leſs than half the number of words. But, to return to our enquiry—In the hypothesis is concealed the principal part of the errors attending our reasoning: for it is seldom supported by *intuition*; and those propositions which are offered as theorems, or established truths, frequently rest on fallible testimony. Now, to attempt to erect a superstructure on such an hypothesis, without fairly offering it, with an acknowledgment of all its defects, as the condition on which the truth or

falsehood of the result must principally depend, is as sophistical as an effort to prove, by reasoning, the truth or falshood of a problem, when the means of proof never were, or are no longer, within the reach of mortals. The first object then, in the examination of reasoning, should be to discover, and the second, to investigate the hypothesis, where the means are in our power; and, if we cannot obtain perfect satisfaction, we should consider the hypothesis as nothing more than a doubtful condition, on the truth of which, the conclusion must be determined; and should never suffer the beguiling charms of that which is erected on such a basis, so to captivate us as to forget that the whole depends, perhaps, upon an improbable asertion to which, in the solitude of abstraction, we should be inclined to give little or no credit. Examples of a false hypothesis occur in abundance, but, to avoid redundance, the reader is referred to page 119, where a satisfactory example is stated.

The next place in reasoning wherein fallacy or error is admisible, is in the deduction, or what we have called the subtraction; that is, the operation of deducting the minor term from the middle term, as the subject of the major proposition. All that is necesary to be said on that head will be found in pages 106, 107, and 108, with an example from Mr. Addison; but as I have given no example

wherein both the hypothesis and deduction are defective, after avowing the most sincere respect to the author, I shall take the liberty of giving the following example from the preface of doctor Johnson's dictionary.

[" ε A large work is difficult ε | because ι it is *large*, | ε even though ι all its parts might, singly, be performed with facility; ε] [where there are many things to be done, | each must be allowed its share of time ι and ι labour, in the proportion only | which it bears to the whole;] nor [can it be expected, | *that* | ε the stones ε | which form the dome of a temple, | ε should be squared and polished like the diamond of a ring. ε"]

In this sentence there is *a causal enthymeme* followed by two general, comprising six special propositions; the parts of which, and the dependence of the divided members, may be easily discovered by attending to the various modes of distinction.

Now the act of reasoning is comprised in the three first propositions, ending with the semicolon; for the rest of the sentence only asserts, literally and figuratively, that *each of many things cannot be expected to receive the same portion of time and labour as may be allowed to the finishing of one thing*, and of course can have no tendency to prove that *a large work is*

difficult, nor even that *a large work is laborious*, since the operation to be employed on each part is to be diminished in proportion to the number of parts which are to compose the whole; as appears by the contrast of the stone and diamond. All, therefore, that regards the reasoning, stands between the two first crotchets. Let us then state the enthymeme in logical order, that we may discover and examine the hypothesis.

A large work, though all its parts might singly be performed with facility, is difficult;
Because it is *large*.

Now the attribute *large* is the middle term, and the hypothesis which we are to admit is, that *to whatever work the attribute* LARGE *may be applied, the attribute* DIFFICULT *is applicable also*; and the hypothesis may be stated thus:

EVERY WORK WHICH is *large* is difficult.

Now it must be acknowledged that there are many large works which are not *difficult*, though they may be *laborious*: hence the hypothesis must be false; for if there were but one single work to which the attribute *large* is applicable, and to which the attribute *difficult* cannot be ascribed also, it vitiates the hypothesis.

Now let us view the minor term, and endeavour to discover whether or no it be a fair deduction from the subject of the hypothesis.

A large work, even though all its parts might singly be performed with facility, is *large*.

Can this be considered as a deduction of *minus* from *plus*, or a *species* from a *genus*? Is not the minor proposition (omitting the parenthetical matter) a futile repetition of the special proposition composing the subject of the hypothesis? Is not saying that a *large* work is *large*, the same as asserting that *a thing is so* because *it is so*? But mark the conclusion.

Therefore a large work, though all its parts might singly be performed with facility, is difficult.

Can a large work be difficult, when *all its parts* might singly be performed with *facility*? Certainly if, with *facility*, which is opposite to *difficulty*, each part might be singly performed, the attribute *difficult* cannot properly be applied to all those *facile* parts taken collectively, particularly if the portion of time and labour employed about each is to be diminished in proportion to the number of parts which are to compose the whole. To the honour of doctor Johnson, however, it must be acknowledged, that few men ever reasoned in so extensive a style with less inaccuracy.

The next sort of defect we shall notice is what I call inadequate reasoning.

The elegant sentences of Mr. Addison, which will be admired till our language shall be forgotten, are generally composed of short harmonious propositions, which are either descriptive, self-evident, or their truth is so very obvious, that they must be assented to without proof. Hence he is seldom under the necessity of cramping his periods by reasoning. It was a fondness for this sort of indicative propositions that enabled Mr. Addison to render his style so smooth and harmonious. He seems, indeed, to have been extremely partial to the writings of Mr. Locke; but able reasoning, it must be confessed, is not among the excellencies for which this charming writer is so justly celebrated. In pages 107 and 108 is quoted an inaccuracy of Mr. Addison from No. 412 of the Spectator. In the eleventh period following, in the same number, Mr. Addison reasons again, and is again defective. The following are his words:

"There is not, perhaps, any real beauty or deformity in one piece of matter more than in another;
Because we might have been *so made, that whatever now appears loathsome to us might have shewn itself agreeable*:—"

What! is this a sufficient reason why *there is not, perhaps, any more real beauty or deformity in one piece of matter than in another?* What has our make to do with the beauty or deformity of matter? Suppose mankind had never been created, would not all other pieces of matter have poſseſsed the same inherent attributes they do now? The truth is, Mr. Addison seems to have been satisfied himself that *beauty* and *deformity* are not positive characters in things themselves, but that they owe their existence entirely to the effect which different modes of matter have upon our senses: this he attempts to demonstrate to others, but has, it will appear, entirely omitted the proof.—He concludes his period thus:

"But we find by experience, that there are several modifications of matter which the mind, without any previous consideration, pronounces at first sight beautiful or deformed."

But still here is no reason offered on which Mr. Addison's aſsertion can be grounded; for if, as we are now made, we are ready, without previous consideration, to pronounce modified matter *beautiful* or *deformed*, were we made with sentiments directly inverted with respect to *deformity*, we should only feel agreeable sensations on beholding things we

now consider loathsome. But, in this instance, the *middle term* or *reason* is entirely omitted; hence I call the reasoning *inadequate*. To have reasoned well Mr. Addison should have expreſsed himself thus:

There is not perhaps any real beauty or deformity **in one piece of matter more than in another;**
Because these things *exist only with relation to our senses.*

To which he might have added, as an auxiliary reason,

For we might have been so made, that whatever now appears loathsome to us might have shewn itself agreeable.

But then the proof, when the language is disposed in syllogistic order, must depend entirely upon the words I have taken the liberty of introducing: as,

THINGS WHICH *exist only with relation to our senses,* are not, **perhaps, existent in one piece of matter than in another;**
Real beauty or deformity *exists only with relation to our senses;*
Therefore real beauty or deformity is not, **perhaps, existent in one piece of matter more than in another.**

It might, perhaps, be said, that Mr. Addison supposed his readers knew, without proof, that *beauty* or *deformity* existed only with relation to our

senses. If so, what occasion was there for reasoning? If an affirmation be taken for granted, there is no occasion for proof; if reasoning be neceſsary, the proof should be adequate.

Reasoning may become obscure through an improper use of words, or by means of their equivocal meaning; but to attempt any thing more on this head, than a recommendation to authors of the best authority, for the proper meaning of words, would be undertaking a task equal to one of the labours of Hercules. Sometimes, however, we shall find, on nice investigation, that reasoning is rendered obscure by the arrangement of the language only: as,

"But, because *human judgment, though it be gradually gaining upon certainty, never becomes infallible*; and, *approbation, though long continued, may yet be only the approbation of prejudice or fashion*; [IT is proper to enquire by what peculiarities of excellence Shakespeare has gained and kept the favour of his countrymen."]

Johnson's Preface to Shakespeare.

Now here the inference which stands between crotchets is preceded by two middle terms, which, either jointly or separately, should sufficiently justify the conclusion. But, in order to examine this enthymeme accurately, let us supply the minor

term, which, though not expreſsed, is implied in the aſserting proposition, thus,

It is **proper** *that* WE should enquire by what peculiarities of excellence Shakespeare has gained and kept the favour of his countrymen.

Here the pronoun *it* represents the real subject which follows the predicate *proper*, and the minor term appears in capitals. Let us now state the conclusion, and ask the question why? when each middle term, with the neceſsary supplement, should form a satisfactory answer.

It is **proper** *that* WE should enquire by what peculiarities of excellence Shakespeare has gained and kept the favour of his countrymen.

Why?

Because WE [*believe that*] *human judgment, though gradually gaining upon certainty, never becomes infallible*; and Because WE [*think further researches might prove that*] *approbation, though long continued, may yet be only the approbation of prejudice or fashion.*

Now here the second, is a good answer. *i. e.* the reason is perfectly satisfactory; but the first is rendered obscure by a bad arrangement; for it appears that we are to appeal from the human judgment of a former time to the human judgment of a latter time; *because*, though gradually gaining

upon certainty, *it never becomes infallible.* But, by a small transposition, which indeed materially alters the sense, the first reason will be amply striking and satisfactory: as,

> Because WE [believe that] human judgment is gradually gaining upon certainty, ; though ; it never becomes infallible.

Here we appeal from the human judgment of a *former time* to the human judgment of a *latter time*, because it is *gradually gaining upon certainty*; which is a reason sufficiently forcible.

Thus, by transposing the conjunction *though* and the pronoun *it*, *i.e.* by making the second special proposition *pure* and the third *modal*, we remove the obscurity of this very elegant sentence; as will appear by re-stating it in the doctor's own style, with this little alteration only:

> But ; because human judgment *is* gradually gaining upon certainty, *though it* never becomes infallible; and approbation, though long continued, may yet be only the approbation of prejudice or fashion; it is proper to enquire, &c.

Obscurities of this kind frequently occur, particularly where reasoning is expreſsed in such extensive style, and this is certainly owing to an ig-

norance of the analysis of language; for, if the doctor, in his *limæ labor*, had reviewed the preceding sentence with a logical eye, he must have perceived the absurdity.

As it would be tedious and unneceſsary to expreſs every thing fully, there are and ever will be considerable ellipses in language, ellipses which are only discoverable by analysis; for, in the fashionable modes of familiar language, we perceive not when an omiſsion occurs. Hence are many writers mistaken, in the dependence that one part of a discourse has upon another; and often so confound the active and paſsive sense, that, when the proper supplements are added to exhibit a complete concatenation, the most strange anomalies present themselves: and it is by no means uncommon to discover an inference stated, preceded by the illative *therefore*, without any distinct reason whatever having been aſsigned.

Let it not be supposed, that the preceding examples are a few solitary mistakes, searched after and discovered with labour; on the contrary, numberleſs instances occur in our very best authors, particularly where the reasoning is extended to any considerable length. Nor is this a matter of astonishment; for the art of reasoning has been so little attended to, that even the most ingenious and most

learned men this country has produced were totally ignorant of its principles. Many indeed have, in a great measure, supplied this defect by the strength of their own native faculties; and no one in a more eminent degree than doctor Samuel Johnson. But those to whom nature has been so exceedingly bountiful, that they can feel the force of reasoning without being acquainted with its principles, are totally unable to point out exactly the connections on which the proof depends; *i.e.* each hypothesis and deduction. And it is curious to observe how a man of strong natural abilities will be embarrafsed, if he be urged for farther proof, when he is conscious that he is right, and thinks that he has said what ought to be satisfactory. But it is a fact that many reason well without knowing when they reason, and that bad reasoning is as common among the learned as bad grammar is among the illiterate.

CHAPTER XVII.

Of method.

AS the former parts of logic acquaint us with the powers of the mind, inform us how to marshal the objects of our knowledge, and instruct us in rendering them subservient to an orderly, familiar, and comprehensive discipline, under the direction

of the will; method is intended to shew us how discoveries are made, and to teach us the best means of communicating them to others.

Method is divided into *analytic*, *synthetic*, and *arbitrary*. In the analytic method, which is also called the method of *resolution*, we are taught to begin with a composition, and reduce it gradually into its first principles; as a chemist resolves a natural substance into water, earth, salt, sulphur, and mercury, and so acquaints himself, as far as he is able, with its first principles. This is also the method recommended to define a complex term, or a combination of ideas; and, if it were possible to reduce all the parts of the composition into simple perceptions of sensation and reflection, the analysis would be complete: but it is with the logician as with the chemist, some of the component parts will, either through their subtilty, escape in the process, or resist the skill of the enquirer.

The synthetic method is that wherein we begin with the simple parts, and put them together in an orderly manner, till we have completed the composition. Thus it appears, that if we could exactly trace a combination into its simple principles by analysis, and let nothing escape, then, having noticed the order in which they were com-

bined, we could, by the synthetic method, join the parts together again, and so make up the combination. But neither of these methods, however pleasing in theory, are, either in chemistry or logic, easily reducible to practice. These two methods are, also, by some, called *natural methods*, but nature wonderfully produces animals, vegetables, and all the admirable compounds in the fosil kingdom, by means far beyond the reach of mortal wisdom.

Logical writers say, that the analytic method is employed in discoveries of the mind, that by it we are able to trace out the cause from the effect; but that sciences are taught by the synthetic method: as in the mathematics, the mind is first informed of simple units, and thence gradually led on to an acquaintance with the highest combinations, and into a knowledge of the most distant relations.

Both these methods are, doubtless, admirable assistants to the memory; for as things present themselves to the mind in a state of combination, and have a sort of dependence upon one another, so when we come to trace them backward by the analytic method, the dependence is perceived, and our procedure facilitated. Though these two methods are ingenious fabrications of the mind, and serve us as universal guides; yet, in tracing them

nicely, the best writers find it very difficult to preserve a clear distinction between them.

"*Arbitrary method*," says Dr. Watts, "leaves "the order of nature, and accommodates itself to "many purposes; such as, to treasure up things, "and retain them in memory; to harangue and "persuade mankind to any practice in the reli- "gious or the civil life; or to delight, amuse, or "entertain the mind."

"Those writers and speakers whose chief bu- "sineſs is to amuse or delight, to allure, terrify, "or persuade mankind, do not confine themselves "to any *natural order*, but in a *cryptical* or *hidden* "*method*, adapt every thing to their designed ends. "Sometimes they *omit* those things which might "injure their design, or grow tedious to their "hearers, though they seem to have a neceſsary "relation to the point in hand: sometimes they "*add* those things which have no great reference "to the subject, but are suited to allure or refresh "the mind and the ear. They *dilate* sometimes, "and flourish long upon little incidents; and they "skip over, and but lightly touch the drier parts "of their theme. They *place the first* things *last*, "and the *last* things *first*, with wondrous art; and "yet so manage it as to conceal their artifice, and "lead the senses and paſsions of their hearers into

"a pleasing and powerful captivity."—A beautiful description of the effects which the native ingenuity of the mind might produce, by shaking off the trammels of general rules.

Thus, it appears, that the method which naturally suggests itself to an ingenious mind, peculiar to the identical object in view, is the best to be adopted; for so various are the subjects about which method is employed, and so difficult is it to contrive general rules for particular cases, that they frequently embarrass those who attempt to apply them, and often destroy the spirit of a performance.

It is indeed certain, that, in matters of enquiry, the mind, without regarding any rules whatever, pursues, to obtain its information, the best method which presents itself to its view, and, perhaps, never proceeds twice in the same way,

The reason why the mind generally employs something like the analytic method, is, because the whole composition is too unwieldy for its management, and therefore it endeavours to obtain the satisfaction required, by examining the parts separately.

For this same reason, something like the synthetic method is adopted, to communicate com-

plicated systems; beginning with simple objects, and gradually exhibiting to the mind of the learner, in an obvious order, all the parts of the composition: and, in such cases, it is, perhaps, posſible to adhere nearly to the synthetic method. But is this exactly a contrary picture to the means by which the discovery unfolded itself to him who explored the system? Surely every one who has attempted to invent, in the smallest degree, will answer, No; for complicated subjects unfold themselves to the mind in so very irregular a manner, that were it posſible to detail them in an order exactly the reverse of that in which they made their way into the mind of the discoverer, they would, perhaps, be scarcely intelligible. Upon the whole it will appear, that the analytic and synthetic methods, though beautiful piles of mental structure, have no real existence in the practical world. They may, however, be considered in logic, what imaginary models of immaculate rectitude are in religion and ethics; *i.e.* standards of perfection agreeable to which we should conduct ourselves as nearly as posſible, consistent with the safety of our life and health. But we should not pine for want, to maintain a severity of moral rectitude, incompatible with an occupation from which we may legally obtain support; nor perish in attempting to adopt a degree of pious purity which may be incosistent with the untowardneſs of our

present state. Neither should we so shackle ourselves with the analytic method, as to refuse useful things, because they do not present themselves according to rule; nor, in the communication of our thoughts, should we tread with such exact caution in the synthetic method, as to disgust our readers or hearers, with the stiff formality of methodical arrangment.

It is the introduction of a multiplicity of rules, invented, as it were, to teach men to philosophize mechanically, that has brought so many branches of learning into ridicule, and it was this absurdity which gave occasion for that admirable piece of humour, the "Philosophers of the Floating Island," in Swift's Gulliver.

THE END.

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